



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street  
San Francisco, CA 94105-3901

September 21, 2005

MEMORANDUM

SUBJECT: Transmittal of Alleged Title VI Violation by Maricopa County, Arizona in the Issuance of a Clean Air Act Operating Permit to Phoenix Brickyard

From: Colleen McKaughan, Associate Director *FOR & MCK*  
Region 9 Air Division

To: Karen Higginbotham, Director  
Office of Civil Rights

Attached please find a document (attachment 1) which alleges a violation of Title VI of the Civil Rights Act. The allegation was made by Don't Waste Arizona, Inc. ("DWAZ") regarding the issuance of a Clean Air Act Title V Operating Permit by Maricopa County, Arizona to Phoenix Brick Yard. In short, DWAZ alleges that the permitting of a major uncontrolled source of hazardous air pollutants, particularly hydrogen fluoride, in a low income minority community is an intentional Title VI violation. The allegation was included as part of a petition by DWAZ asking EPA to deny Phoenix Brick Yard's operating permit under title V of the Clean Air Act. Steve Brittle, representing DWAZ, indicated in a phone call that DWAZ would like the allegation in the petition to be treated as a formal Title VI complaint. The petition/complaint was received by EPA on July 18, 2005. The final title V permit for Phoenix Brick Yard was issued by Maricopa County on June 6, 2005. The Region 9 Air Division has been very involved in the permitting of this source. Should your office need any assistance in evaluating this Title VI complaint or should you have any questions regarding this matter, please feel free to contact me at (520) 498-0118, or Kathleen Stewart of the Air Permits Office at (415) 947-4119. Below, please find background on the facility and the permitting process.

*Attachments (3)*

**Background**

Phoenix Brick Yard ("PBY") is a brick manufacturing facility in South Phoenix, Arizona. Maricopa County Air Quality Department ("MCAQD") public noticed a draft permit in the spring of 2003. During the public comment period MCAQD held a public hearing to allow interested citizens to provide input on the permit. MCAQD provided interpreters, translated materials, and published announcements in both English and Spanish newspapers. In addition, a charrette was conducted after the public hearing process to bring together representatives of the company, a number of local government agencies, the USEPA and the community. Finally, MCAQD prepared a response to comments document (attachment 2). MCAQD proposed a title V permit for EPA review and comment in the summer of 2005. A final permit was issued to PBY on June 6, 2005.

The primary concern to neighbors of PBY is hydrogen fluoride ("HF") and hydrogen chloride ("HCL") emissions. PBY has accepted two voluntary limits on HF emissions – one to limit emissions below the 1-hr Arizona Ambient Air Quality Guideline ("AAAQG") for HF, and one to avoid having to install emission controls pursuant to a federal rule. Both limits are averaged over a one-month period. MCAQD states in the technical support document accompanying the permit (attachment 3) that "it is possible that Phoenix Brick could comply with the average HF emission limit of 287 pounds per day and still exceed the 1-hr AAAQG for HF."

During the public comment period, DWAZ submitted comments on the draft permit for PBY, stating that "The issuance of this air pollution permit would be an intentional violation of Title VI of the U.S. Civil Rights Act. It is inappropriate to permit a major uncontrolled source of hazardous air pollutants, especially a major uncontrolled source of hydrogen fluoride emissions, in a low-income community of color<sup>1</sup>." MCAQD's response to this comment can be found on pages 34 and 35 of attachment 2, as a response to comment 12b. DWAZ reiterated its concern in the title V public petition received by our office on July 18, 2005. It is the comment found in the title V petition that we are forwarding to your office as a possible Title VI complaint. The comment can be found on pages 3 and 4 of attachment 1. The petition contains additional references to civil rights violations, one in the last sentence of the 3<sup>rd</sup> full paragraph on page 4 of attachment 1, and one under item 5 on page 5 of attachment 1.

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<sup>1</sup> While PBY is not currently required to install emission controls for HF and HCL, Maricopa County has recently promulgated a rule to control particulate matter emissions from brick and structural clay products manufacturing processes. It is possible that implementation of this rule will result in control of HF and HCL emissions as well, as one of the potential control devices that may be used by PBY is also capable of controlling HF and HCL emissions.



6205 South 12th Street - Phoenix, Arizona 85040  
(602) 268-6110 Fax (602) 268-0915

**RECEIVED**

JUL 18 2005

OFFICE OF THE  
EXECUTIVE SECRETARIAT

VIA FACSIMILE TO 202-501-1450

Mr. Stephen L. Johnson  
Administrator  
United States Environmental Protection Agency  
Ariel Rios Building  
1200 Pennsylvania Avenue, N.W.  
Washington, DC 20460

Re: Appeal of Air Permit V97-021, Phoenix Brick Yard

Dear Mr. Johnson:

Don't Waste Arizona, Inc. (DWA) is a non-profit environmental organization dedicated to the protection and preservation of the Arizona environment. DWA is especially concerned about environmental justice issues, air pollution, and toxics issues. DWA is headquartered at 6205 South 12th Street, Phoenix, AZ 85042, and may be reached at (602) 268-6110. DWA has members in the affected area by the air pollution from the subject facility.

The Maricopa County (Arizona) Air Quality Department (MCAQD) has issued a Title V permit to the Phoenix Brick Yard, Title V Permit V97-021.

DWAZ appeals this permit administratively to the Administrator, for the reasons that will follow. DWAZ filed comments on the proposed permit, and the basis for the appeal arises from DWAZ's comments (attached) made during the public comment period for this permit. Also, as changes were made in the final permit, there are issues there that DWAZ asks be reviewed.

#### **Record Keeping/Lack of Public Access Violation of Title V**

A Title V permit must have provisions that allow the public sufficient information to determine whether the facility is in compliance. The record keeping requirements in the proposed permit are such that the records are kept at the facility and there is no provision for public access or inspection. Therefore, unless the facility is required to file its records with the custodian of records so that the public may have access to the reports, the permit must be denied.

The final permit requires the Permittee to file semiannual monitoring reports, which would also include the Production Log and Hydrogen Fluoride Emissions Log, which would include the result of the daily calculation of the hourly throughput of material into the kilns (averaged over a 30-day rolling period), the daily hydrogen fluoride emissions, and all calculations of all production limits.

There is no way for the EPA or the public to determine the veracity of these figures, which are all subjective by facility staff. Further, with the averaging allowed of the production records allows the facility to exceed the 10-ton per hour limit that enables it to escape the MACT standard. The facility could exceed the 10-ton/hour limit for seven hours of a day, then operate at a very low level for an hour or two, and then average it all to average out production for the day below the 10-ton/hour limit.

The record keeping itself and the types of testing and sampling are insufficient to assure compliance. The provision to sample and analyze the raw materials clay for fluorine content to determine fluctuations, variations, and/or deviations in the fluorine content of the clay raw material is insufficient. This would have an effect on the amounts of hydrogen fluoride being emitted. The agency's own records show that the test method to be used for conducting a mass balance on the fluorine content of the brick to estimate hydrogen fluoride emissions is not an EPA approved test method.

Also, the facility will be using a pre-determine emissions factor for the hydrogen fluoride prior to stack testing. (Prior to conducting source testing, an emission factor of 1.602 lbs HF / ton of brick fired shall be used.) This is arbitrary and capricious, and has no scientific basis in actual testing and monitoring, and does not represent actual operating conditions.

Provision D of the record keeping requirements limits the Control Officer's access to all of the facility's records to when the Control Officer has "reasonable cause" to believe the Permit has been violated or is in violation of any provision of County Rule 100 or any County Rule. This is an illegal permit condition because it limits access to the type of evidence that the public, the EPA, and the MCAQD may rely upon to show that the facility is violating the permit. It is also illegal because it limits the type of evidence that the public may rely upon to show that the facility is violating its air quality permit, and limits or prevents the public from enforcing certain requirements.

#### **PERMIT ALLOWS ADVERSE HEALTH EFFECTS**

The permit also admits that there could be exceedances of the hourly standards for hydrogen fluoride emissions from the facility in the ambient air. This is the first air permit DWAZ has encountered that admits the health standard for a toxic is likely exceeded by emissions. The permit states,

**"According to the modeling results, the HF emission rate input into the model necessary to limit the maximum 1-hr HF concentration to a level that does not exceed the 1-hr Arizona Ambient Air Quality Guideline (AAAQG) for**

HF is 1.5079 grams per second. Assuming the kilns operate 24 hours per day, the HF emission rate corresponds to 287 pounds per day. In order to be more certain that the 1-hr AAAQG for HF will not be exceeded during any one-hour period, a more ideal HF emission limit would be based on an hourly timeframe such as 12 pounds per hour. This would require hourly record keeping, which can be burdensome to facilities like Phoenix Brick. The HF emission rate voluntarily accepted by Phoenix Brick is a daily average over a one-month period. Therefore, it is possible that Phoenix Brick could comply with the average HF emission limit of 287 pounds per day and still exceed the 1-hr AAAQG for HF. In addition, if the kilns are not operated 24 hours per day, or the majority of throughput into the kilns occurs over a period of time less than one day, it is possible that Phoenix Brick could comply with the average HF emission rate of 287 pounds per day, while exceeding the 1-hr AAAQG for HF."

Aside from the fact that the emissions limits for hydrogen fluoride are entirely illegal, the permit allows 287 pounds per day, averaged over a month's time. This is not sufficient to assure compliance with the outrageous and illegally proposed limit for hydrogen fluoride. This is also not sufficient to ensure there are no daily exceedances of the daily limit on hydrogen fluoride emissions or exceedances of the Arizona Ambient Air Quality Guidelines (AAAQGs) referenced in the proposed permit, even though these AAAQGs are "voluntary" guidelines, and are in themselves not sufficiently protective of public health and safety, nor scientifically sound or enforceable. There is no reason to believe that there would not be hourly exceedances of the Arizona Ambient Air Quality Guidelines (AAAQGs) referenced in the permit, either, for hydrogen fluoride.

Further, these daily "limits" allow the facility to emit 104,755 pounds of hydrogen fluoride annually. This exceeds the facility's historic hydrogen fluoride emissions, and is not a limit at all. In addition, this exceeds the 10-ton limit of a single HAP as set forth by the 1990 Clean Air Act, and requires MACT.

#### Title VI, Civil Rights; Disparate Impact

The admission in the permit that there could be exceedances of health-based guidelines and the lack of any limits or controls affirms that the issuance of this permit is an intentional Title VI (civil rights) violation. This facility is in and impacts an ethnic minority that has been complaining about strong chemical odors and adverse health impacts, all attributable to the facility emitting the hydrogen fluoride.

DWAZ, in its comments on the proposed permit, included the civil rights issue.

DWAZ commented, "The issuance of this air pollution permit would be an intentional violation of Title VI of the U.S. Civil Rights Act. It is inappropriate to permit a major uncontrolled source of hazardous air pollutants, especially a major uncontrolled source of hydrogen fluoride emissions, in a low-income community of color. The adjacent, affected community is overwhelmingly an ethnic minority community. That the affected community is a low-income, ethnic minority

community makes the permitting an intentional, discriminatory act because it will have a knowingly, intentional, and disproportionate adverse effect on the adjacent community of color.

The Phoenix Brick Yard is across the street from homes. The MCAQD is aware of complaints from local residents and others of strong acid odors believed to be emanating from the facility and the complaints of adverse health effects, particularly respiratory problems. There are no other facilities permitted by MCAQD in the vicinity of the Phoenix Brick Yard that could be the source of these acid odors. It is a violation of the federally enforceable SIP for a facility to emit such large amounts of air pollution or odors that it causes the loss of enjoyment of nearby property. **The failure of the MCAQD to stop the facility from emitting such acid odors is another, ongoing, civil rights violation.**

There is no other facility in MCAQD's jurisdiction that emits such an extraordinarily high amount of hydrogen fluoride emissions, much less in a community of color. In fact, the Phoenix Brick Yard's emissions of hydrogen fluoride are about ten times more than any other facility with hydrogen fluoride emissions in MCAQD's jurisdiction. This is the fourth largest county in the United States of America, with thousands of permittees.

#### RECORDKEEPING INSUFFICIENT TO ENSURE COMPLIANCE

The Operational Requirements for Clay Raw Material Handling in the permit are insufficient to show compliance, and the permit only requires them to be kept on-site. **This is an illegal permit condition because it limits access to the type of evidence that the public may rely upon to show that the facility is violating the permit. It is also illegal because it limits the type of evidence that the public may rely upon to show that the facility is violating its air quality permit, and limits or prevents the public from enforcing certain requirements.** The Operations and Maintenance Plans (O&M Plans) are kept at the facility and not available for public review. Further, the O&M plans must be available for review and comment by the public **before** the issuance of a proposed Title V permit. ***The permit should have been denied on this basis alone,*** as the failure to provide O&M Plans during the public review of the proposed permit invalidated the proposed permit and the process of permit issuance. The intentional withholding of this O&M Plan information from an ethnic minority community, which is entitled under federal law to full disclosure and review of this information so that the community can participate in a Title V permit process, is another civil rights violation. MCAQD has knowledge of this, and a pattern of skirting the law in this regard.

#### OTHER PERMIT ISSUES

The final permit that was issued deviated from the proposed permit enough to warrant review by the Administrator.

1. Initial Performance testing should not be done after Permit is issued, but rather before (after all, this is a Title V Permit). Given the special circumstances of this

facility, MCAQD should also do an independent Performance Test during regular facility operations using their own Contractor. Unless and until the correct initial performance testing is done, and the actual HF emissions rates at this facility are quantified, there should be no use or reliance on the arbitrary HF emissions standards proposed to be used in the permit.

2. Adjusting parameters to be just barely below 10 tons/year is violating the overall intent of MACT. Worst-case published AP-42 Emissions Factors (EF) should be used in either case and not just arbitrary numbers to barely meet HF standards and total emissions limits.
3. Monitoring of emissions and ambient air should be included as part of this Permit, specifically for HF and HCL. An independent monitoring program should be done by MCAQD during operations also.
4. Dust emissions monitoring relies upon facility voluntarily choosing to test and report only if a walk-through determines visibility is poor. This is very subjective and should be more restrictive, such as requiring at least weekly testing for opacity during peak operations. Also, operator training to test for opacity properly is not mentioned nor required. There should be reporting associated with number of water-truck trips, fuel used, water used, etc. to ensure dust control measures are indeed being employed.
5. The permit as issued uses and mixes modeling, monitoring, and technology-based standards in its approach, which is entirely inappropriate, and seems to be used as a convenience to skirt the issues presented by the dangerous emissions from the facility. This approach also appears to be intentional, and a knowing violation of the civil rights of the ethnic minority community adjacent to the facility.

Sincerely,



Stephen M. Brittle  
President  
Don't Waste Arizona, Inc.  
6205 South 12th Street  
Phoenix, AZ 85042

# **ATTACHMENT 2**

## **Maricopa County AQMD Response to Comments**





# Maricopa County

Air Quality Department

Permitting Section  
1001 N. Central Ave, Ste 200  
Phoenix, Arizona 85004-1942  
Phone: (602) 506-6700  
Fax: (602) 506-6985

January 6, 2005

Subject: Phoenix Brick Yard – Title V Permit  
Response to Public Comments

Dear Sir or Madam:

The Department has processed the application for a Title V Air Quality Permit (Application No. V97021) for Phoenix Brick Yard. A public comment period, including a public hearing held on March 11, 2003, allowed for interested citizens to comment on the proposed permit.

This letter is being sent to you because of your participation in the public hearing process. After careful consideration of all of the factors involved, the Department wishes to notify you of our decision to issue the Title V Air Quality Permit to Phoenix Brick Yard. We appreciate the interest and concern expressed by the citizens of Maricopa County in helping to ensure that each permit issued by the Department meets all legal requirements. We have carefully evaluated the comments received and have prepared written responses. A copy of these comments and the Department's responses is attached.

I would like to thank you again for your interest in matters affecting Maricopa County's air quality. If you have any questions regarding this letter or the attached responses, please contact Mr. Dale Lieb at (602) 506-6738.

Sincerely,

Richard Polito  
Acting Department Manager

Enclosure



# Maricopa County

## Air Quality Department

Permitting Section  
1001 N. Central Ave, Ste 200  
Phoenix, Arizona 85004-1942  
Phone: (602) 506-6700  
Fax: (602) 506-6985

### RESPONSE TO COMMENTS ON PROPOSED TITLE V PERMIT NO. 97-021 PHOENIX BRICK YARD

At the time of the Phoenix Brick public hearing, air quality permits were issued thru the Air Quality Division of the Maricopa County Environmental Services Department (MCESD) with Mr. Al Brown, the Department Director, also serving as the Air Pollution Control Officer. Due to a recent reorganization within the County, air quality permitting responsibilities are now handled by the newly formed Maricopa County Air Quality Department (MCAQD) with Ms. Joy Rich, the Maricopa County Regional Services Development Manager, is currently serving as the Interim Air Quality Control Officer. For readability purposes, both the comments and responses both refer to the currently responsible authority, the MCAQD.

These responses prepared by the MCAQD address the verbal and written comments and questions regarding the proposed Title V Air Quality Permit for Phoenix Brick Yard, located at 1814 S. 7<sup>th</sup> Avenue, Phoenix, AZ.

Comments requesting clarification of and revisions to the proposed permit conditions and supporting documents were received. In addition, comments regarding the applicability of certain federal and local rules were received. Based on the comments received, the following information includes:

- Summary of revisions to be incorporated in the final permit conditions,
- Summary of the revisions to the technical support document, and
- Responses to written and verbal comments received before and during the public hearing held on March 11, 2003.

If there are any questions regarding the public comments or the County's responses, please contact Mr. Dale Lieb of the Air Quality Department at (602) 506-6738.

### Summary of revisions to be incorporated in the final permit conditions

As a result of the comments and MCAQD's responses, the following revisions were incorporated into the proposed permit conditions:

1. Proposed Permit Condition 19.A.3 – Stack requirements: Phoenix Brick Yard removed rain caps on the kiln stacks in order to allow the unhindered vertical rise of the stack plume. The presence of the rain caps redirected the stack emissions horizontally. It is expected that the removal of the rain caps will reduce fence-line concentration of pollutants, reduce odors, and also allow for proper dispersion of pollutants and operation in a manner consistent with the dispersion modeling. Since dispersion modeling did not account for the presence of rain caps and the results were used, in part, to develop certain permit conditions, Phoenix Brick Yard should keep the rain caps off the kiln stacks. Therefore, the following paragraph was added to Permit Condition 19.A.3:

*The Permittee shall not reinstall the rain caps on the kiln stacks unless appropriate dispersion technology is used to maintain or reduce the concentration of pollutants emitted from the kiln stack at the property boundaries. If the rain caps are reinstalled, the Permittee shall submit an application for a permit revision and conduct emissions modeling to ensure compliance with all applicable standards.*

2. Proposed Permit Condition 19.B.5 – This permit condition was removed since the proposed permit covers the activities currently being conducted at the facility. The requirement for a permit revision for specific activities that are not currently being conducted at the facility falls under Maricopa County Rule 210 §400 and should not be addressed in the permit.
3. Proposed Permit Condition 19.D - This permit condition was revised to read as follows:

*"Mold release lube oil: the Permittee shall use a mold release lube oil with a vapor pressure of less than 1 mm Hg at 20°C."*

4. Proposed Permit Condition 19.F – The following provision was added to this permit condition:

19.F.3) The Permittee shall not use the round kiln for firing bricks.

5. Proposed Permit Condition 20.F – The rule citation was changed from County Rule 220 §304 to County Rule 210 §302.1.
6. Proposed Permit Condition 20.F.1 – Monitoring and Recordkeeping Requirements for Production Limits and Hydrogen Fluoride Emission Limits:

- 1) *The Permittee shall maintain a daily log and a 12-month rolling total [in tons] of all clay raw material delivered on site.*

The Department has removed proposed permit condition 20.F.1, which required the Permittee to maintain a log of the quantity of all clay raw materials delivered to the facility. This information is not necessary to demonstrate compliance with production limits or hydrogen fluoride emission limits. In addition, recordkeeping of the raw material is required under Permit Condition 20.C.1.

7. Proposed Permit Conditions 20.F.2 through 20.F.6 – Monitoring and Recordkeeping Requirements for Production Limits and Hydrogen Fluoride Emission Limits:

The Department has revised these subparagraphs slightly to indicate that the material throughput data and operating hours for the kilns can be specified as a combined throughput and operating hours, instead of specifying data for each individual kiln.

8. Proposed Permit Condition 20.F.8 – Monitoring and Recordkeeping Requirements for Production Limits and Hydrogen Fluoride Emission Limits: The Department has removed the condition requiring the calculation of the 12-month rolling total HF emissions.
9. Proposed Permit Condition 21.A.1 – Reporting Requirements: This condition was omitted since condition 20.F.1 was omitted.
10. Proposed Permit Condition 21.A.2 – Reference to Permit Condition 20.F.6 was changed to 20.F.3 to reflect changes made to Permit Condition 20.F.
11. Proposed Permit Condition 21.A.3 – Reference to Permit Condition 20.F.7 was changed to 20.F.5 to reflect changes made to Permit Condition 20.F. The Department has removed the condition requiring the submittal of the 12-month rolling total HF emissions in order to reflect the change in Proposed Permit Condition 20.F.8.
12. Proposed Permit Condition 22.B - Kiln Stack Testing and Testing of Fluorine Content of Brick: Mass balance testing requirements were revised to indicate that the brick mixes sampled should be representative mixes used under normal operation conditions, instead of testing each individual mix.

Proposed text

Each test shall include at least three samples of each type of brick produced.

Revised Text

Each test shall include three representative samples each of brick mixture used in normal operations.

13. A new permit condition, 23.B, was added to the permit as a voluntary condition taken by the source. It requires that the Permittee modify the source as necessary, based upon information that may become available in the future, to assure that the offsite concentrations of hydrogen fluoride remain below the Arizona Ambient Air Quality Guidelines based upon the use of an EPA approved dispersion model.

**Summary of the revisions to the technical support document**

As a result of comments received and revisions to permit conditions noted above, revisions to the Technical Support Document were made.

1. Section IV: Discussion of the rain caps removal issue was moved from the Section IV (Compliance History) to Section X (Modeling) of the Technical Support Document.
2. Section V.C: SIP Rule 32F – Sulfur Oxide Emissions (Permit Condition 18.A)  
This section was added to clarify that monitoring of sulfur oxide emissions to demonstrate compliance with the sulfur dioxide concentration limits per SIP Rule 32F is not required since air dispersion modeling shows that SO<sub>2</sub> concentrations beyond the property are less than 4% of the SO<sub>2</sub>

limit. This section and appropriate tables will be updated based on revisions to the CO and VOC emissions as described above for the revisions to permit conditions.

3. Section V.G.2.a: A statement was included in this section specifying that Phoenix Brick Yard is required to use a lube oil having vapor pressure of less than 1 mm Hg at 20 °C in order to maintain compliance with Permit Condition 19.D.1.
4. Section V.A.2: Revisions were made to reflect changes to Permit Condition 20.F.
  - Text stating that Phoenix Brick Yard would be required to maintain records of the quantity of clay raw material delivered to the site pursuant to Permit Condition 20.F.1 was deleted, since Permit Condition 20.F.1 of the proposed permit was omitted.
  - Text was revised to indicate the throughput and operating data for the kilns can be combined.

**Responses to written and verbal comments received before and during the public hearing held on March 11, 2003**

For the purposes of organizing responses to comments, MCAQD has categorized comments based on several topics; these are presented in the section addressing responses to comments. Specific comments are highlighted under each topic. Furthermore, if comments "cross-over" into other topics, MCAQD's responses include references to those comments.

TOPIC	COMMENT HIGHLIGHT
<u>1. Specific Permit Conditions</u>	<ul style="list-style-type: none"> <li>a. Permit Condition 18.A</li> <li>b. Permit Condition 18.B</li> <li>c. Permit Condition 19.B</li> <li>d. Permit Condition 19.B</li> <li>e. Permit Condition 19.B</li> <li>f. Permit Condition 19.D</li> <li>g. Permit Condition 19.F</li> <li>h. Permit Condition 20</li> <li>i. Permit Condition 21</li> <li>j. Permit Condition 22.A</li> <li>k. Permit Condition 22.B</li> <li>l. O&amp;M Plan availability</li> <li>m. Odors</li> </ul>
<u>2. Hydrogen Fluoride Emissions And Production Limits</u>	<ul style="list-style-type: none"> <li>a. Limit production to meet AAAQG</li> <li>b. Monitoring production levels</li> <li>c. Monitoring HF emissions</li> <li>d. HAP Major Source Threshold, Production Limits and Synthetic Minor Applicability.</li> <li>e. HF emission limit – illegal?</li> <li>f. Calculation Methodology</li> <li>g. Who enforces the limits? Self policing?</li> <li>h. Reduce emissions or close facility</li> <li>i. Production limit vs. capacity</li> </ul>
<u>3. Arizona Ambient Air Quality Guidelines (AAAQGs)</u>	<ul style="list-style-type: none"> <li>a. AAAQGs and dispersion modeling</li> <li>b. Possibility of exceeding AAAQG</li> </ul>
<u>4. Air quality modeling</u>	<ul style="list-style-type: none"> <li>a. Rain caps</li> <li>b. Suggestion for additional modeling</li> <li>c. How far are pollutants emitted?</li> <li>d. Where is modeling data?</li> </ul>
<u>5. Testing</u>	<ul style="list-style-type: none"> <li>a. Lack of sampling requirements?</li> <li>b. Testing recommended</li> <li>c. ADEQ monitoring</li> <li>d. No sampling provisions</li> <li>e. Testing Schedule</li> </ul>
<u>6. Compliance History</u>	<ul style="list-style-type: none"> <li>a. Complaints and compliance notices</li> <li>b. Complaint follow-up</li> </ul>
<u>7. Maximum Achievable Control Technology (MACT) Standards</u>	<ul style="list-style-type: none"> <li>a. MACT Applicability and MACT Hammer Issues</li> <li>b. Costs</li> <li>c. Why No HF Emission Controls?</li> </ul>
<u>8. RACT/BACT</u>	<ul style="list-style-type: none"> <li>a. Applicability</li> <li>b. Fugitive Emissions, HCl, &amp; CO</li> <li>c. Is lack of Control considered BACT?</li> <li>d. Is lack of Control considered RACT?</li> </ul>
TOPIC	COMMENT HIGHLIGHT

<p><u>9. Monitoring, Record Keeping &amp; Reporting</u></p>	<p>a. Public access to records b. Control Officer's access to records c. Emissions Inventory Report d. Clay Raw Material Handling e. Production and HF Limits f. Monitoring particulate matter</p>
<p><u>10. Dust and Odors</u></p>	<p>a. Acid Odors a - Civil Rights Violation b. Dust Control Plan, Trackout from trucks, odor complaints c. Odor Training &amp; Citizens' Complaints</p>
<p><u>11. Impacts on Public Health</u></p>	<p>a. Personal Medical Problems</p>
<p><u>12. Other</u></p>	<p>a. Permit should be denied b. Civil Rights Violation c. Spanish Translation d. Rain Caps not a Control Device e. Source Classification: Major or Minor? f. Are the Rules Legal? g. Permit Approval Time Period h. What Happens if Permit is Denied? i. How many kilns are there? j. IWU = breach of public's trust k. Community due process l. Environmental contacts</p>

## **1. Specific Permit Conditions**

**Comment 1a:** Permit Condition #18 A. Facility Wide Requirements, Section 2. Phoenix Brick is a minor source for SO<sub>x</sub> emissions. In this section, limitations are given for sulfur dioxide emissions based on ambient concentrations; however, no method for demonstrating compliance is stated in the permit. The only accurate method of measuring compliance would be through fence line monitoring, which is technically infeasible, as the south border of the property (I-10) is a significant contributor to SO<sub>x</sub> emissions. County Rule 220 § 302.1 provides that the air permit should only include "enforceable emission limitations". Because compliance cannot be demonstrated, this permit condition is not enforceable and should be deleted. Before imposing this requirement, please provide documentation that other minor SO<sub>x</sub> sources in Maricopa County are required to meet this limitation and how compliance is demonstrated.

**Response 1a:** Offsite SO<sub>2</sub> impacts are in the Arizona State Implementation Plan (SIP), and therefore, are applicable requirements pursuant to County Rule 100 §200.16. County Rule 210 § 302.1b requires applicable requirements to be addressed in the Title V permit. Maricopa County has evaluated dispersion modeling results that were submitted with the permit application and understands that offsite concentrations at the maximum potential to emit from the facility are less than 4% of the applicable standard pursuant to SIP Rule 32F. Therefore, no additional monitoring, reporting or record keeping requirements necessary to assure compliance. This explanation will be added to the final technical support document.

**Comment 1b:** Permit Condition # 18 B. 1) Allowable Emissions for Clay Raw Material Storage Pile, Sections b and c: These subsections set forth certain alternative criteria to qualify for an affirmative defense. Subsection (b) requires the application of water/dust suppressant twice per hour. Rule 310, Section 301.1, provides that it is an affirmative defense if one or more of the control measures in Table 2 are applied and maintained. Rule 310 (Table 2) also allows for the application of water once per hour. The requirement of twice per hour in the draft permit is excessive and unnecessary. [In any case, the duration is more important than frequency. Duration is not specified.] Additionally, Rule 310, Table 2, allows for the construction of fences or 3-5 foot high wind barriers to reduce wind blown material leaving the site. Phoenix Brick has installed fences that are above and beyond the requirements of this section of the rule.

**Response 1b:** Permit Condition # 18 B. 1 sections b) and c) are applicable permit conditions pursuant to Rule 310 § 301.1 subparts a through d. This Rule sets forth criteria to qualify for an affirmative defense in case of a wind event that causes the opacity limit to be exceeded. Rule 310 § 301.1(a) is necessary to qualify for the affirmative defense and states that "1 or more of the control measures in Table 20 were applied and maintained". According to Table 20, the application of water is necessary once per hour in attainment areas and twice per hour in non-attainment areas. Since Phoenix Brick Yard is located in a non-attainment area, water must be applied twice per hour if Part 2A of Table 20 is used as a control measure pursuant to Rule 310 § 301.1(a).

The installed fences located at the property may fit the definition of a wind barrier to fulfill the requirements of Table 20 part 4A. However, meeting the requirements of 4A does not, by itself, satisfy the requirements of Rule 310. If implementing part 4A, it must be used in tandem with either part 2A or 3A to qualify as an affirmative defense in an enforcement action.

**Comment 1c:** Permit Condition #19 B. Operational Requirement for Clay Raw Material Storage, Section 1) a) and b) and Section 4) b): These requirements apply to unpaved haul/access roads. Phoenix Brick haul/access roads are paved. These requirements do not apply and should be deleted.



**Response 1c:** The clay storage area is located on unpaved ground. To access the clay storage piles, haul trucks travel on the unpaved area, which the Department considers an unpaved haul/access road. Therefore, the requirements of Rule 310 specified in Permit Condition 19 B are applicable to Phoenix Brick Yard.

**Comment 1d:** Permit Condition #19 B. Operational Requirement for Clay Raw Material Storage, Section 4 a: Phoenix Brick does not haul materials off-site onto paved public roadway. Once the clay is delivered to the site, it is processed. These requirements do not apply and should be deleted.

**Response 1d:** Haul trucks transverse Phoenix Brick Yard's work site, including unpaved areas, and exit onto paved public roadways. Therefore, Phoenix Brick Yard must comply with County Rule 310 § 308.3.

**Comment 1e:** Permit Condition #19 B. Operational Requirements for Clay Raw Material Storage, Section 5): Please define the meaning of "routine basis". The reference to Rule 210, § 302.1 b (1) appears to be in error since the Rule only requires the authority of the permit term to be specified. The Rule does not reference any of the conditions in the draft permit.

**Response 1e:** After further discussion with the applicant, this section will be omitted from the Title V Permit since Phoenix Brick Yard does not currently engage in any of the mentioned activities. However, the Permittee must be aware that a permit revision is required, pursuant to County Rule 210 § 400, prior to engaging in any of these activities.

**Comment 1f:** Permit Condition #19 D. Operational Requirements For VOCs, Section 1): Rule 330 requires that no more than 15 pounds per day of VOCs exposed to temperatures greater than 200°F can be emitted without installing control devices. Rule 330 also limits VOC emissions to 40 lb./day of noncompliance solvents without installing reduction control devices. There are no rules limiting material usage based on vapor pressure or similarity to other products. The reference to "similar chemical/physical properties" also is vague. This permit condition is not enforceable, legally or practically, and should be deleted.

**Response 1f:** County Rule 330 requires that no more than 15 pounds per day of VOC's exposed to temperatures greater than 200°F can be emitted without installing control devices to reduce emissions of these VOCs. Since Phoenix Brick Yard has not demonstrated that such control devices are utilized, the 15 pounds of VOC per day limit is applicable. County Rule 210 § 302.1b requires that each permit issued contain enforceable emission limitations and standards including those operational requirements and limitations that assure compliance with all applicable requirements at the time of issuance. To demonstrate compliance with Rule 330 §301 the Department is requiring Phoenix Brick Yard to use a mold release lubricating oil with a vapor pressure similar to 76 Unax AW 32 since this is how Phoenix Brick Yard proposed to demonstrate compliance. However, the Department agrees that the language in the draft permit is somewhat vague. Therefore, to simplify the language, reference to "similar chemical/physical properties" will be changed to indicate a specific vapor pressure at a specific temperature. The revised condition will read as follows:

"Mold release lube oil: the Permittee shall use a mold release lube oil with a vapor pressure of less than 1 mm Hg at 20°C."

**Comment 1g:** Permit Condition # 19 F. Operational Requirements for Production Limits, Section 2): This section limits the combined throughput of the tunnel kiln and roller kiln to 9.9 tons/hour in order to avoid a proposed Maximum Achievable Control Technology (MACT) Standard. The current MACT threshold under the proposed Brick and Structural Clay National Emission Standard for Hazardous Air Pollutant (NESHAP) is 10 tons per hour of raw material throughput. This permit requirement should

allow for an adjustment at the permittee's option, should the final MACT threshold be changed. The permit should be changed to automatically increase this production limit to 0.1 ton/hour less than the final MACT threshold. This should have no effect on emissions since Phoenix Brick must still comply with the HF emission limit.

**Response 1g:** This was a voluntary emission limit accepted by Phoenix Brick Yard prior to public notice. At this point in time we can not change this limit, along with its associated emissions, that have been submitted to the public. Phoenix Brick Yard is always welcome to submit an application for a permit revision to propose an increase to this limit at a later time after the Permit has been issued.

**Comment 1h:** Permit Condition # 20 Monitoring and Record Keeping: As a general comment on the draft permit condition, the record keeping and monitoring requirements of this section are duplicative and excessive. Please refer to the monitoring and record keeping requirements in the attached permit for a brick manufacturing facility in the South Coast Air Quality Management District in Southern California (also EPA Region IX). The requirements for hourly and daily monitoring and record keeping duplicates County-approved Dust Control and O & M plan requirements for the same facility. Specific sections are addressed in the following:

- a. Section A, Part 1 a) -- The facility Dust Control Plan and the O&M plans have provisions for monitoring and record keeping. This section requires a daily opacity inspection. The approved O&M plans specify weekly opacity inspections. This is an unnecessary and duplicative requirement. It also is inconsistent with other draft Title V permits issued by Maricopa County. For example, permit V97-005 for MAAX Spas, V97-022 for Marlam Industries and V97-004 for Master Craft Cabinets only requires a monthly opacity inspection. Thus, this request should be deleted and Phoenix Brick should only be required to comply with the approved Dust Control and O&M plans.
- b. Section B, Part 1 b) -- The facility Dust Control Plan and O&M plans have provisions for monitoring and record keeping (see item 8 e. below). This is an unnecessary and duplicative requirement. It should be deleted.
- c. Section B, Part 3 b and c) -- Phoenix Brick does not have unpaved haul/access roads. These sections should be deleted.
- d. Section C, Part 1 b) -- This section requires recording the throughput and the amount of all raw materials delivered each day. Allowable emission limitations are specified earlier in the permit (Permit Condition # 18 E. and # 19 F, Sections 1 and 2), which already require calculation of daily emission rates based on production throughput. This is an unnecessary and duplicative requirement and should be deleted. In addition, Phoenix Brick's raw materials do not include sand, aggregate, cement or fly ash.
- e. Section C, Part 1 c) -- Phoenix Brick has been operating its baghouses under County approved O&M plans which call for weekly measurement and recording of pressure drop, compressed air pressure and visible emissions. In addition, weekly, monthly, quarterly and semi-annual preventive maintenance activities on each dust collector have been conducted and logged. This section specifies unnecessary and excessive, (i.e. hourly manometer readings) and should be deleted in favor of compliance with the County approved O&M Plan. Further, draft Title V Permits for Master Craft and MAAX Spas only require daily recordings of the pressure changes. The requirement for hourly recordings is therefore clearly excessive.
- f. Section D, Part 1 b) -- Phoenix Brick does not use coatings, adhesives, makeup solvents or solvents used for surface preparation.

- g. Section D, Part 2. -- Solvent usage at Phoenix Brick is practically negligible, constituting less than one percent of the raw material usage. The requirement for a weekly walk through and log of observations is unnecessary and burdensome.
- h. Section F, Parts 1-6 -- This section requires the permittee to monitor daily and calculate 30 day rolling totals of all clay materials delivered on site and throughput and hours of operations of the rolling Kiln and Tunnel Kiln. In order to verify that the emission limits in Permit Conditions # 18E and 19F, §§ 1 and 2 are being met, the ONLY required logs are

- 1) Total daily throughput (in tons) and total hours of operation of the Tunnel Kiln
- 2) Total daily throughput (in tons) and total hours of operations of the Roller Kiln.

The calculations that are needed to satisfy the throughput limit and HF limit can be based on these two logs. All other log requirements should be deleted.

This section also requires the permittee to calculate the daily throughput of material into each kiln over the last 30-day period. The emission limits are based on an average total throughput of all kilns; therefore separate calculations for each kiln are unnecessary. The requirement should be modified to only require a calculation by dividing the total throughput of all kilns over the most recent 30 days divided by the total operating hours of both kilns. Allowable emission limitations specified earlier in the permit (Permit Condition # 18 E. and # 19 F, Sections 1 & 2) require calculation of average daily emission rates, based on averaging production throughput.

- i. Section F, Part 8: -- This section requires the permittee to calculate the average HF emission rate for the last month and a 12-month rolling total. Permit condition #18E and 19F establish the emission limits based on a 30-day average tons/hour of throughput and emissions not exceeding 1.0 lb./ton of throughput of HF. Calculating the 12-month rolling total for HF is not relevant to confirming the emission limits, is unnecessary and should be deleted.

**Response 1h:**

- a. Section A, Part 1a) -- The Title V permits issued to MAAX Spas and Marlam Industries requires weekly monitoring of visible emissions. The proposed permit for Master Craft Cabinets requires opacity monitoring twice per week. Furthermore, the facilities are not in the same industry category as Phoenix Brick Yard, and therefore should not be compared to each other. Phoenix Brick Yard, unlike previously mentioned companies, is subject to County Rule 316. Facilities subject to County Rule 316 have a higher propensity to emit PM<sub>10</sub>, and therefore have more stringent monitoring requirements with respect to visible emissions. In addition, the Department's approval letter for the most recently approved Operation and Maintenance Plans for the dust collectors specifies that visible emissions from the dust collector be monitored once per day of operation.
- b. Section B, Part 1 b) -- It is unclear to which permit condition this comment refers. There is no permit condition 20.B,1(b).
- c. Section B, Part 3 b and c) -- The clay storage area is located on unpaved ground. To access the clay storage piles, haul trucks travel on the unpaved area, which the Department considers an unpaved haul/access road. Therefore, the requirements of Rule 310 specified in Permit Condition 19 B are applicable to Phoenix Brick Yard.

- d. Section C, Part 1 b) -- These monitoring and record keeping requirements are required by County Rule 316 § 501. These record keeping requirements are applicable to Phoenix Brick Yard and therefore cannot be removed from the Title V Permit. Reference to sand, aggregate, cement or fly ash is language used in County Rule 316, and is not intended to be an inclusive list of raw material.
- e. Section C, Part 1 c) -- These monitoring and record keeping requirements are required by County Rule 316 § 501. County Rule 316 is applicable to Phoenix Brick Yard; therefore this requirement cannot be removed from the Title V Permit.  
  
MAAX Spas, Marlam Industries and Master Craft Cabinets are not in the same industry category as Phoenix Brick Yard, and therefore should not be compared to each other. However, Phoenix Brick Yard, unlike previously mentioned companies, is subject to County Rule 316. Facilities subject to County Rule 316 have a higher propensity to emit PM<sub>10</sub>, and therefore have more stringent monitoring requirements with respect to visible emissions.
- f. Section D, Part 1.b -- The applicable part to this condition is "and any other VOC-containing material used". Phoenix Brick Yard does use lubricating oil that is a VOC containing material. Monthly records for VOC containing material are required pursuant to County Rule 330 § 503.2.
- g. Section D, Part 2. -- The Department does not believe that it is unreasonable to require weekly inspection to ensure that reasonable measures are taken to minimize emissions of VOC.
- h. Section F, Parts 1-6 -- The Department will remove proposed permit condition 20.F.1, which requires the Permittee to maintain a log of the quantity of all clay raw materials delivered on-site since this information is not necessary to demonstrate compliance with any applicable requirement. The material usage recordkeeping requirement will be modified slightly to allow the use of a single log book for kiln material usage.

Subsection 6 of proposed permit condition 20.F will also be revised to require the average throughput of material into all kilns combined, instead of each individual kiln.

All other subsections of proposed permit condition 20.F will remain.

- i. Section F, Part 8: -- Since there is no annual hydrogen fluoride emission limit to monitor compliance with, The Department has agreed to remove the requirement for calculating the 12-month rolling total HF emissions.

**Comment 1i:** Permit Condition # 21, Sections A and D, Reporting Requirements for Production Log and Emissions Log and Walk Around Reporting. These issues were addressed earlier in record keeping. The permit should only require copies to be provided of the logs described above.

**Response 1i:** County Rule 210 § 302.1e requires submittal of a report of any required monitoring to the Department. This rule is applicable to Phoenix Brick Yard and cannot be removed from the Permit. However, Permit Condition 21.A was revised to reflect the changes made to Permit Condition 20.F.

**Comment 1j:** Permit Condition # 22 Testing Requirement, Section A: Performance testing of low flow rate baghouses is an unreasonable permit requirement. Three Phoenix Brick dust collectors are 1,000-CFM flow rates (one is 2,500 CFM). Baghouse/dust collector/air filter technology has been in existence for a long time, and the efficiencies are high and well documented. In addition, the EPA Method 5 for measurement of Particulate Matter in source testing does not directly measure PM-10, the regulated pollutant. Phoenix Brick maintains daily readings of pressure drop through the filter media, has a

Maricopa County approved Operation and Maintenance manual and has personnel certified in EPA Method 9 Opacity Measurement. It also is noted that the draft Title V Permit for MAAX Spas, which includes two bag house (9,000 CFM and 9,800 CFM), did not require any emission testing. Before imposing this duplicative requirement, please provide documentation that the facilities in Maricopa County with small baghouses similar to Phoenix Brick have been required and are able to perform emission tests.

**Response 1j:** Phoenix Brick Yard is required to test the baghouses because they are subject to a particulate matter emission standard of 0.02 grains/dscf, as required in Permit Condition 18.C.1 and Rule 316. Testing is necessary in order to demonstrate compliance with this standard. MAAX Spas is not subject to a particulate matter emission standard, and therefore, is not required to test their baghouses.

**Comment 1k:** Permit Condition # 22 Testing Requirements, Section B -- Phoenix Brick proposes to use a mass balance approach as an alternative to stack testing for HAP's including hydrogen fluoride and hydrogen chloride. A stack test is a one-time measurement of the pollutant at one point of time. The one-time stack test is not representative of overall emissions. The mass balance alternative involves an assay of the fluoride and chloride content of a brick sample before and after firing of a representative mixture. Three separate tests are proposed over a course of a year. This method is actually more accurate and conservative, as it predicts all of the fluoride and chloride is converted to the hydrogen form. In reality, there are several other non-HAPs fluoride and chloride species that are likely to be present, such as  $\text{SiF}_4$  and  $\text{SiCl}_4$ . Clemson University researchers confirm the existence of  $\text{SiF}_x$  and  $\text{SiCl}_x$  derivatives in their development of the mass balance approach used by brick manufacturers. The mass balance approach provides a much better and more representative method of predicting emissions. The draft permit condition requires that each test shall include at least three samples of each type of brick produced. Phoenix Brick has over 600 brick mixtures/formulations used at various times and frequencies. The wording needs to reflect that the tests will be conducted on representative mixtures. Phoenix Brick requests that the stack test requirement be deleted and replaced with the mass balance process.

**Response 1k:**

When the permit condition was written, the Department was unaware of the possible number of formulations. The Department agrees that to perform three mass balance tests for each different type of brick mixture or formulation would be unnecessary and burdensome to the source. The wording will be changed to reflect that the tests will be done on representative mixtures to clarify the original intent of the testing.

Stack testing requirements will remain. One purpose of the stack test is to determine a correlation between stack tests and the mass balance test. The mass balance testing which was submitted in the application is based on the Clemson University Report. This report is consistent with the Department's finding and suggests that stack testing be performed along with the mass balance calculation. Stack tests are to be conducted at a time and in a manner that are representative of emissions at Phoenix Brick Yard.

**Comment 1l:** The Operational Requirements for Clay Raw Material Handling in the proposed permit are insufficient to show compliance, and the proposed permit only requires them to be kept on-site. This is an illegal permit condition because it limits access to the type of evidence that the public, the EPA, and the MCAQD may rely upon to show that the facility is violating the permit. It is also illegal because it limits the type of evidence that the public may rely upon to show that the facility is violating its air quality permit, and limits or prevents the public from enforcing certain requirements. The Operations and Maintenance Plans (O&M Plans) are kept at the facility and not available for public review. Further, the O&M Plans must be available for review and comment by the public before the issuance of a proposed

*Title V permit. The proposed permit must be denied on this basis alone, as the failure to provide O&M Plans during the public review of the proposed permit invalidates the proposed permit and the process of permit issuance. The intentional withholding of this O&M Plan information from an ethnic minority community, which is entitled under federal law to full disclosure and review of this information so that the community can participate in a Title V permit process, is another civil rights violation. MCAQD has knowledge of this, and a pattern of skirting the law in this regard.*

**Response 1l:** The commenter has not specifically stated why or under what conditions compliance cannot be shown or what requirements cannot be enforced. Consequently, MCAQD is unable to provide a response to the objections raised in this comment.

MCAQD has not withheld O&M Plan information from the public. Phoenix Brick Yard submitted the required O&M Plans during the application review process. Therefore, the O&M Plan was available for public review prior to and during the public comment period.

**Comment 1m:** *It is the height of absurdity for several reasons, and patently illegal, to expect or require the public to contact the facility to complain about hydrogen fluoride odors. Besides MCAQD shirking its Title V oversight duties, it is an onerous expectation or requirement to put upon this ethnic minority community. This is an illegal permit condition because it limits access to the type of evidence that the public, the EPA, and MCAQD may rely upon to show that the facility is violating the permit. It is also illegal because it limits the type of evidence that the public may rely upon to show that the facility is violating its air quality permit, and limits or prevents the public from enforcing certain requirements. There is no mention of putting these odor complaints on file at the agency. Yet, this is the information that must be available to the public at all times. The facility should be required to relay any citizen complaints of odors immediately to the MCAQD Complaint Line, or refer callers to that telephone number. The only appropriate reporting of odor complaints should be to the MCAQD itself.*

*Further, it is unreasonable to even expect a person from the general public to recognize the odor of hydrogen fluoride. This is a chemical that people would normally never have any contact with, much less training on how it smells. It would not be wise to encourage people to learn how to smell this very poisonous chemical, either. People have died from inhaling this. A material safety data sheet for this identifies it as a sharp, suffocating, acidic odor. The EPA Air Toxics website states "Hydrogen fluoride has a sharp, pungent, irritating odor; the odor threshold is 0.042 parts per million (ppm)." Unless the public is specifically trained on the recognition of this odor and who to contact, in English and in Spanish, relying on public complaints to determine a problem is disingenuous and ill conceived.*

**Response 1m:** Permit Condition 20.A.2 (Odor Log Requirement) does not require the public to contact Phoenix Brick Yard to complain about hydrogen fluoride odors. The public may call MCAQD's Complaint Line at 602-506-6616 to file odor complaints, dust complaints, or any other type of complaint related to air quality. MCAQD investigates all complaints received. During the investigation the facility is notified of the complaint so corrective action may be taken. Although MCAQD has a system in place to receive and investigate odor complaints, the public may also file an odor complaint directly with Phoenix Brick Yard. In these instances, Phoenix Brick Yard will also be required to record such complaints in the odor log. Complaints to the facility allows the facility to immediately investigate if there is a problem with their operations. Phoenix Brick Yard will be required to submit a copy of the log to MCAQD in the semiannual compliance report, which makes MCAQD aware of all complaints, not just those complaints filed with MCAQD. The odor log submitted in the semiannual compliance report will be available for public review.

Furthermore, the odor log requirement does not restrict odor complaints to be associated with the odor of hydrogen fluoride as the comment suggests. MCAQD will accept and investigate any odor complaint received.

## **2. Hydrogen Fluoride Emissions and Production Limits**

**Comment 2a:** *The Title V air quality permit application states that emissions will be controlled at or below the allowable concentrations at the outer fence line of the property by limiting the number of bricks that are manufactured. This method does not seem adequate to ensure consistent control of emissions. Are there more reliable control methods available and under what conditions would they be required for this facility?*

**Response 2a:** The emissions rate of hydrogen fluoride is proportional to the quantity of bricks produced. Therefore, limiting production is a reasonable and valid method of limiting hydrogen fluoride emissions.

Hydrogen fluoride scrubbers have been used to control hydrogen fluoride emissions from the brick manufacturing process. These scrubbers can achieve removal efficiencies of greater than 90%. In addition, studies have indicated that hydrogen fluoride emissions can be reduced by using additives such as marble dust and granular limestone. A study in December 1994 at Richtex Brick showed a 47% hydrogen fluoride reduction by using 2% granular limestone applied to the top of the kiln cars along with 2% marble dust added to the mix. Subsequent testing conducted at Pine Hall Brick used 2% marble dust added to the mix and achieved a 21% hydrogen fluoride reduction. Since Phoenix Brick Yard is not legally required to control hydrogen fluoride emissions, Maricopa County lacks authority to require such controls. Therefore, the conditions under which control methods would be required would be voluntary.

**Comment 2b:** *Phoenix Brick Yard proposes to monitor compliance with the air quality standards by submitting monthly records of brick production and natural gas usage in the kilns. The monitoring will be done based on the 12-month rolling average rather than an hourly production volume. In addition, the hydrogen fluoride mass balance is calculated annually. This control monitoring technique does not seem appropriate in light of the emissions modeling discussed [in Comment 3a].*

**Response 2b:** This comment was received prior to MCAQD drafting proposed permit conditions. Based on the proposed permit conditions, Phoenix Brick Yard will be required to calculate the average daily hydrogen fluoride emissions on a monthly basis, not on an annual basis. In addition, Phoenix Brick Yard will be required to maintain records indicating the daily and 30-day rolling total throughput of material into the kilns. Also, on a daily basis, Phoenix Brick Yard will be required to calculate the average hourly throughput of material into the kilns over the most recent 30-day period. The purpose of this is to monitor compliance with the kiln production limit of 9.9 tons per hour, which is required in order for Phoenix Brick Yard to be exempt from the MACT rule. However, the MACT rule requires that kiln operation be restricted to less than 10 tons per hour on a 12-month rolling average basis. Phoenix Brick Yard will be required to restrict kiln operation to less than 10 tons per hour on a 30-day rolling average basis; and is therefore, more stringent than the MACT rule.

**Comment 2c:** *The average HF emissions limit of 287 pounds-per-day is based upon 1-hour modeled HF concentrations at the fence-line. We recommend that HF monitoring at the fence-line be employed to ensure that 1-hour fence-line concentrations predicted by the model are representative of actual expected HF ambient concentrations at the property boundary.*

**Response 2c:** The HF emissions limit of 287 pounds per day is a voluntary limit accepted by Phoenix Brick Yard. This limit corresponds to an emission rate that results in 1-hour fence-line HF concentrations that do not exceed the 1-hour Arizona Ambient Air Quality Guideline (AAAQG) for HF. AAAQGs are

guidelines, not required standards. Therefore, MCAQD is unable to find regulatory justification to require actual fence-line monitoring to monitor compliance with a voluntary limit that was based on a guideline. However, MCAQD is requiring Phoenix Brick Yard to conduct a source test to measure the actual emission rate of HF from the stack of the kiln. This information will be used to determine compliance with the daily emission limit and may be used to ensure the emission rate employed in dispersion modeling is representative of actual emissions from the facility.

**Comment 2d (Paraphrased):** *MCAQD received many comments regarding the major source threshold for hazardous air pollutants (HAPs). One commenter provided a regulatory definition of a major source pursuant to 42 U.S.C.A. 7412 (A)(1), which defines a major source as a source "that emits or has the potential to emit considering controls, in the aggregate, 10-tons per year or more of any hazardous air pollutant..." The commenter goes on to imply that the hydrogen fluoride emissions limit of 52 tons per year specified in the proposed permit overrides the United States Congress and exceeds the "federal emissions limit of 10 tons". The same commenter indicated that production limits only apply to synthetic minor sources and do not apply to HAP emissions "over the 10-ton single HAP limitation". Another commenter implied that MCAQD is allowing Phoenix Brick Yard to become a minor source by establishing production limits and thus avoiding the control requirements of the MACT subpart.*

**Response 2d:** Phoenix Brick Yard emits more than 10 tons of a single HAP per year, and is therefore considered a major source, as defined in Section 112 of the 1990 Clean Air Act Amendments (CAAA). The threshold of 10 tons per year is not an emission limitation for HAPs, as implied by the commenter. It is merely a demarcation for determining whether a source of HAPs is classified as a major source. Therefore, by proposing a hydrogen fluoride emission limit of 287 pounds per day (which is equivalent to approximately 52 tons per year), Maricopa County is not overriding the United States Congress, nor is Maricopa County promulgating its own arbitrary federal law limit, as the commenter suggested.

Production limits are not applicable to only synthetic minor sources, as the commenter stated. The production limits proposed in the permit will not cause Phoenix Brick Yard to become a synthetic minor source nor a minor source. The production limits were proposed for two purposes. One purpose was to effectively limit hydrogen fluoride emissions to the allowable limit specified in the proposed permit. The second purpose of establishing a production limit was for Phoenix Brick Yard to avoid being subject to the MACT subpart for brick manufacturers.

**Comment 2e:** *Aside from the fact that the proposed emissions limits for hydrogen fluoride are entirely illegal, the proposed permit allows 287 pounds per day, averaged over a month's time. This is not sufficient to assure compliance with the outrageous and illegally proposed limit for hydrogen fluoride. This is also not sufficient to ensure there are no daily exceedances of the Arizona Ambient Air Quality Guidelines (AAAQGs) referenced in the proposed permit, even though these AAAQGs are "voluntary" guidelines, and are in themselves not sufficiently protective of public health and safety, nor scientifically sound or enforceable. There is no reason to believe that there would not be hourly exceedances of the Arizona Ambient Air Quality Guidelines (AAAQGs) referenced in the proposed permit either, for hydrogen fluoride. This is an illegal permit condition because it limits access to the type of evidence that the public, the EPA, and the MCAQD may rely upon to show that the facility is violating the permit. It is also illegal because it limits the type of evidence that the public may rely upon to show that the facility is violating its air quality permit, and limits or prevents the public from enforcing certain requirements.*

**Response 2e:** The commenter has not specifically stated why or under what conditions compliance cannot be shown or what requirements cannot be enforced. MCAQD believes the record keeping and reporting requirements are sufficient for the public, EPA, or MCAQD to determine compliance. The commenter is invited to provide MCAQD with specific examples that would demonstrate their concern.



Regarding comments about the AAAQGs, MCAQD acknowledges that the AAAQGs are not enforceable standards. However, the Arizona Department of Health Services (ADHS) believes that the AAAQGs are protective of even the most sensitive segment of the population such as asthmatic children. Consequently, MCAQD relies on this information and believes this information to be appropriate and representative.

Phoenix Brick Yard voluntarily accepted an average daily limit of 287 pounds of HF per day, averaged over a one-month period (Permit Condition 18.E) to minimize the potential for HF emissions to exceed the AAAQGs. The average daily limit was based on dispersion modeling results submitted with the permit application. According to the modeling results, the HF emission rate input into the model necessary to limit the maximum 1-hr HF concentration to a level that does not exceed the 1-hr AAAQG for HF is 1.5079 grams per second. With the kilns operating 24 hours per day, this HF emission rate corresponds to 287 pounds per day. Phoenix Brick Yard will be required to conduct a source test to measure the actual emission rate of HF from the stack of the kiln. This information will be used to determine compliance with the daily emission limit and may also be used to ensure the emission rate employed in dispersion modeling is representative of actual emissions from the facility.

**Comment 2f:** *The methodology of calculating the hydrogen fluoride emissions is fundamentally flawed, and insufficient to rely upon to determine compliance.*

**Response 2f:** The commenter did not specify why he believes the calculation methodology is flawed and insufficient. MCAQD believes the method required for calculating hydrogen fluoride emissions, as specified in Permit Condition 18.E and as required by Permit Condition 20.F(5), to be technically sound and sufficient for monitoring for compliance with the applicable hydrogen fluoride emission limit.

**Comment 2g:** *I see something in there where it says something about federal - - it was a voluntary factor on their part, right? And it had something about a federal guideline that they would have to meet. Federal enforceable limits. And if they were able to run over in previous years, how is the federal going to enforce limits on something, or are they to police themselves?*

**Response 2g:** It appears that the comment is referring to the exemption from the MACT rule for brick manufacturers. In order to be exempt from the MACT rule, Phoenix Brick Yard is required to have a federally enforceable permit condition that limits the throughput of the kiln to less than 10 tons of brick per hour. MCAQD has been granted the authority by the U.S. EPA to implement a Title V air permit program. Therefore, the U.S. EPA or MCAQD may enforce the requirements of Phoenix Brick Yard's permit, unless the requirement is identified as locally enforceable only.

To monitor compliance with the production limit, Phoenix Brick Yard is required to maintain production records, as described in Response 2b. MCAQD conducts unannounced inspections of permitted facilities at once every two years. During these inspections, MCAQD reviews records and other requirements of the permit conditions. If it is discovered that Phoenix Brick Yard is not complying with one or more of the terms of the permit, MCAQD or the U.S. EPA may take enforcement action. Citizens may also enforce the permit.

**Comment 2h:** *What I'm saying tonight, if there's any type of way that we can reduce, restrict, and actually if we can, not even allow their presence in the community, that would be a great thing. But understanding that you know, Phoenix Brick Yard has done a lot of business with the County, the City, and all of the other agencies, I don't think that'll happen. But one of the things I do know is that there have been some type of hydrogen fluoride that is definitely detrimental to the community's health and well-being. And that no facility should be allowed to emit not even one pound of this chemical per hour into anybody's community.*

**Response 2h:** The proposed permit for Phoenix Brick Yard includes all applicable requirements and Phoenix Brick Yard is currently in compliance with all applicable requirements. MCAQD lacks the authority to impose more stringent requirements than what is in the proposed permit. During the permitting process MCAQD did not find any reason within the confines of the existing rules to deny the permit. Please refer to our responses to comments such as 2i for more information regarding HF emissions.

**Comment 2i:** *You patted Mr. - - on the back for being so nice, for voluntarily dropping his production down to 9.9 tons per hour, when he is capable of, and I just went over the plans, operating at 75 tons per hour, and he's going to drop down to 9.9. And as you know, exposure, you know all about this stuff, to hydrogen fluoride, hydrogen chloride, all of the metals and what-have-you, causes lung cancer, leukemia, it affects the mucous membrane. You know all about that stuff.*

**Response 2i:** Based on information provided in the permit application, the capacity of the kiln is 10.4 tons per hour, not 75 tons per hour. The 9.9 tons per hour production limit in the proposed permit is a limit on the amount of fired product that can be produced from the kilns. In addition, hydrogen fluoride (HF) emissions are limited to 287 pounds per day. This limit was established based on an emission rate that would result in a fence-line HF concentration lower than the 1-hr Arizona Ambient Air Quality Guideline (AAAQG) for HF. The AAAQGs were developed by the Arizona Department of Health Services (ADHS) based on current toxicological information. ADHS believes that the AAAQGs are protective of even the most sensitive segment of the population such as asthmatic children. Consequently, MCAQD relies on this information and believes this information to be appropriate and representative.

For more information regarding the health affects of exposure to hydrogen fluoride, hydrogen chloride, and metals, please contact Mr. Will Humble, Manager of the Environmental Health Sciences Section at ADHS, at (602) 230-5941.

### **3. Arizona Ambient Air Quality Guidelines (AAAQGs)**

**Comment 3a (Paraphrased):** *MCAQD received many comments regarding air dispersion modeling and the Arizona Ambient Air Quality Guidelines (AAAQGs) for hydrogen fluoride. One commenter stated that the proposed hydrogen fluoride emission limit of 287 pounds per day, which is averaged over a one month period, is illegal and insufficient to ensure that the AAAQGs will not be exceeded. The same commenter points out that AAAQGs are guidelines, not standards. This commenter also stated that the AAAQGs are not protective of the public health and safety, nor scientifically sound. Another commenter raised concern over the fact the fence-line hydrogen fluoride concentration predicted by dispersion modeling (i.e., 41  $\mu\text{g}/\text{m}^3$ ) is very near the AAAQG (i.e., 42  $\mu\text{g}/\text{m}^3$ ).*

**Response 3a:** Regarding the comment that states the hydrogen fluoride emission limit is illegal, the commenter has not specifically stated why or under what conditions compliance cannot be shown or what requirements cannot be enforced. Consequently, MCAQD is unable to provide a response to this objection.

Regarding comments about the AAAQGs, MCAQD acknowledges that the AAAQGs are not enforceable standards. The AAAQGs are developed by the Arizona Department of Health Services (ADHS) based on

current toxicological information'. ADHS believes that the AAAQGs are protective of even the most sensitive segment of the population such as asthmatic children. Consequently, MCAQD relies on this information and believes this information to be appropriate and representative.

Phoenix Brick Yard voluntarily accepted an average daily hydrogen fluoride limit of 287 pounds of per day, averaged over a one-month period (Permit Condition 18.E). The purpose of this emission limit is to minimize the potential for HF emissions to exceed the AAAQGs. The average daily limit was based on dispersion modeling results submitted with the permit application. According to the modeling results, the HF emission rate input into the model necessary to limit the maximum 1-hr HF concentration to a level that does not exceed the 1-hr AAAQG for HF is 1.5079 grams per second. With the kilns operating 24 hours per day, this HF emission rate corresponds to 287 pounds per day. MCAQD acknowledges that the predicted fence-line hydrogen fluoride concentration is very close to the AAAQG for hydrogen fluoride. In addition, MCAQD also acknowledges that compliance with the hydrogen fluoride emission limit does not guarantee that the AAAQGs will not be exceeded. However, since the kiln operates on a 24-hour basis, MCAQD believes that hydrogen fluoride emission rates will not fluctuate significantly if the fluorine content of the raw materials remains consistent. Phoenix Brick Yard will be required to conduct a source test to measure the actual emission rate of HF from the stack of the kiln. In addition, Phoenix Brick Yard will be required to determine the fluorine content of "raw" bricks and fired bricks. This information will be used to determine compliance with the daily emission limit and may also be used to ensure the emission rate employed in dispersion modeling is representative of actual emissions from the facility.

**Comment 3b:** *While we appreciate that the facility has agreed to reduce production (Permit Conditions 19.F.2) with the intent to meet the AAAQG. However, the Technical Support Document states that "it is possible that Phoenix Brick could comply with the average HF emission limit of 287 pounds per day and still exceed the 1-hr AAAQG. A more ideal Hydrogen Fluoride (HF) emissions limit would be based on an hourly timeframe such as 12 pounds per hour." (TSD page 6). Therefore, we urge you to require hourly record keeping to ensure that adjacent residents are not exposed to HF emissions above the AAAQG. (See Permit Conditions 18.E, 19.F and 20.F).*

**Response 3b:** The HF emission limit, as well as the associated record keeping requirements were voluntarily accepted by Phoenix Brick Yard. Since there is no applicable requirement, Maricopa County lacks the authority to require more stringent limitations and record keeping requirements than what is voluntarily accepted by the source.

#### **4. Air quality modeling**

**Comment 4a:** *We request that the permit conditions specifically require that the rain cap cannot be reinstalled, and/or that other appropriate dispersion technology be used to reduce the concentrations of emissions from the kiln stack. If the rain cap becomes necessary to protect the kiln from weather in the future, we request that the County require new emissions modeling to assure that the adjacent properties will not be impacted. (See Permit Condition 19.A).*

**Response 4a:** Permit Condition 19.A.1 was modified to include the requirement that Phoenix Brick Yard not reinstall the rain caps on the kilns unless appropriate dispersion technology is used to maintain or reduce the concentration of pollutants emitted from the kiln stack at the property boundaries. If the

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*For further information on the AAAQGs, please contact Mr. Will Humble, Manager of the Environmental Health Sciences Section at ADHS, at (602) 230-5941.*

rain caps are reinstalled, Phoenix Brick Yard will be required to submit an application for a permit revision and conduct emissions modeling to ensure compliance with all applicable standards.

**Comment 4b:** *The discussion about the air modeling conducted at the facility in the TSD is very limited. The only information I have is that an ISCST3 model was used and that specified emission rates (HF – 1.5079 grams/second) were used. I think an important issue to bring forward is that since the predicted modeled ambient air concentration is so close to the AAAQG (41 vs. 42 micrograms/ cubic meter) for HF that additional modeling should be conducted at the facility. The future modeling should include:*

- *Concentrations from a stack test for real emission values of all HAPs (HF, HCL and metals) instead of calculated values using mass balance.*
- *A dispersion model of how the concentrations of contaminants disperse around the facility using on-site meteorological data.*
- *An exposure model evaluating the exposure of residents that are adjacent to the facility. This exposure model needs to evaluate the exposure of the measured HAPs to children as well as adults.*
- *Verification sampling of ambient air concentrations of HAPs in the surrounding neighborhoods.*

*This facility is situated right next to people and they need to scientifically demonstrate that their operation does not “interfere with the comfortable enjoyment of life or property of a substantial part of the community, or obscure visibility, or which in any way degrade the quality of ambient air below the standards established by MCAQD” as stated in the proposed permit conditions (dated November 27, 2002).*

**Response 4b:** The discussion in the Technical Support Document about air dispersion modeling is intended to be a summary of the modeling and modeling results that were presented in the Title V permit application. The permit application is a public document and can be reviewed by contacting the Custodian of Records, Ron Sands, at (602) 506-6201.

Results of dispersion modeling indicate that the fenceline concentration of HF will not exceed the AAAQG for HF. Phoenix Brick Yard is required to conduct stack testing to monitor for compliance with the allowable hydrogen fluoride emission limit. The actual amount hydrogen fluoride emitted during the test will be determined, which in turn can be used to determine if the HF emission rate used in dispersion modeling was representative of actual HF emission rates.

Additional modeling for all HAPs is not necessary since dispersion models are not pollutant specific. As such, the fenceline concentration of HCl can be predicted by multiplying the fenceline concentration of HF by the ratio of the HCl to HF emission rates. Using this method it was determined that the predicted HCl concentration at the fenceline does not exceed the AAAQG for HCl. The AAAQGs are developed by the Arizona Department of Health Services (ADHS) based on toxicological information. ADHS believes that the AAAQGs are protective of even the most sensitive segment of the population such as asthmatic children.

Between February 22, 2003 and February 27, 2003, the Arizona Department of Environmental Quality (ADEQ) conducted air monitoring for hydrogen fluoride in the vicinity of Phoenix Brick Yard. Monitoring results indicated that hydrogen fluoride was present in an ambient air sample collected on February 25, 2003, at a concentration of approximately 20 parts per billion. The 24-hour Arizona Ambient Air Quality Guideline (AAAQG) for hydrogen fluoride is 24 parts per billion. However, due to various issues that arose during testing, such as wind direction, precipitation, monitor location, and

sampling time, ADEQ recommended that sampling be performed for an extended period with typical meteorological conditions before drawing conclusions. ADEQ also recommended the following:

- Further sampling needs to be performed at a location that is more often downwind of the brick kiln, because winds in Phoenix are typically east-west, and sampling was performed north of the brickyard;
- Higher time resolution data are necessary to determine if the 1-hr AAAQG is being exceeded;
- More HF and HCl samples, including duplicate samples, need to be collected to increase confidence in the data.

**Comment 4c:** *I would like to know or understand that when these pollutants are emitted through the air, what circumference, or what radius in and around the plant is it expected that there could be a health hazard? I just don't know. Is it 1 mile? 2 miles? 3 miles?*

**Response 4c:** The distance that pollutants are emitted from the Phoenix Brick Yard facility depends on atmospheric conditions such as wind speed, temperature, and barometric pressure. However, as discussed in [Response 3d](#), air dispersion modeling for Phoenix Brick Yard shows that the concentration of hydrogen fluoride at and beyond the property does not exceed the Arizona Ambient Air Quality Guidelines (AAAQGs), which are health based guidelines.

**Comment 4d:** *I think I'm one of the first ones who received the copy of your permit from the Phoenix Brick Yard - - that price is \$17 in your office. That was all right to find out, and in the process, I did not receive any modeling for the hazardous waste with the permit application, there was no modeling there. There was old research from 1996. That's all that was there in that permit.*

**Response 4d:** Appendix D of the permit application submitted by Phoenix Brick Yard in 1997 contains air dispersion modeling results, which projects off-site concentrations of hydrogen fluoride from Phoenix Brick Yard. The proposed permit does not contain modeling data, however, the Technical Support Document associated with the MCAQD's review of the permit application contains a summary of the modeling results. The permit, technical support document, and application are all available for public review by contacting MCAQD's Custodian of Records, Mr. Ron Sands at (602) 506-6201.

## **5. Testing**

**Comment 5a:** *The calculations for hydrogen fluoride emissions are based on average fluoride concentrations and production rates. There does not appear to be any proposal to periodically sample the clay soils used to make bricks for fluoride, or to maintain daily production below a certain level. It may be that the calculated daily production represents a maximum; this cannot be determined from the materials we reviewed. However, if the permit was approved by Maricopa County, it appears that concentrations of hydrogen fluoride above the maximum 1-hour exposure could occur if higher -than-expected fluoride levels are present in the imported clays.*

**Response 5a:** The proposed permit conditions require Phoenix Brick Yard to conduct stack testing, as well as a series of mass balance tests on fluorine in the bricks in order to determine a correlation between the measured hydrogen fluoride emission rate and the fluorine content of the raw material. The correlation will be used to determine an emission factor for hydrogen fluoride based on the amount of bricks produced. The emission factor will be used to calculate the hydrogen fluoride emissions and to monitor for compliance with the hydrogen fluoride emission limit of 287 pounds per day. Mass balance testing will be required once every four months. After the first three tests, Phoenix Brick Yard may petition the Department to reduce testing frequency based on the variability of the data.

As stated in the technical support document, given the long averaging time of the hydrogen fluoride limit, it is possible that Phoenix Brick Yard could comply with the average daily hydrogen fluoride emission limit and still exceed the 1-hr AAAQG for hydrogen fluoride. However, since Phoenix Brick Yard operates the kiln at a relatively constant production rate 24 hours per day, the hydrogen fluoride emission rate would be fairly consistent over time; assuming the ingredients of the brick mix remains the same over time. Each test will include three representative samples each of brick mixture used in normal operations.

**Comment 5b:** *Without any type of air quality sampling required, it is difficult to verify whether the calculations and modeling performed for the permit application are representative of actual conditions. Some testing for hydrogen fluoride at the facility boundary during kiln operations is recommended in order to verify the permit assumptions.*

**Response 5b:** As stated in Response 5a, Phoenix Brick Yard will be required to conduct stack testing for hydrogen fluoride and conduct sampling of the raw material for fluorine content. Stack test result will be used to determine if a valid emission rate was used in the modeling. Results from mass balance sampling will be used to correlate the fluorine content to hydrogen fluoride emissions and to determine an emission factor for hydrogen fluoride based on fluorine content. The Department has determined the testing required pursuant to the permit conditions is sufficient to verify assumptions used in the application process and to determine if dispersion modeling is representative of actual operating conditions. Therefore, additional off site monitoring is not required.

**Comment 5c (paraphrased):** *MCAQD received many comments regarding off-site monitoring requirements and off-site hydrogen fluoride monitoring conducted by Arizona Department of Environmental Quality (ADEQ). One commenter stated that a health study should be immediately undertaken as well as a physical, scientific sampling of soil, air and the interiors of homes in the vicinity of the Phoenix Brick Yard for fluoride and fluoride compounds. This commenter pointed out that MCAQD conducted sampling for fluoride levels near another facility in the valley that emits hydrogen fluoride, and stated that the fluoride sampling found a distinct footprint, even though the other facility's hydrogen fluoride emissions are far less than those of Phoenix Brick Yard's. The same commenter referred to the emissions testing required in the proposed permit as "a single snapshot during a short timeframe", and indicated that this is inadequate and not necessarily representative of the full range of possible emission exposures. In reference to off-site monitoring conducted by ADEQ, this commenter also implied that ADEQ is likely to "fix" the monitoring results. The commenter also stated, "If MCAQD is going to rely upon these tests, that information, including the testing protocols, should have been made available during the public notice period for this permit." Another commenter indicated that it would be premature for the EPA and MCAQD to issue the proposed permit without first evaluating the results of ADEQ's data and without the facility conducting the extended modeling.*

**Response 5c:** Between February 22, 2003 and February 27, 2003, ADEQ conducted air monitoring for hydrogen fluoride in the vicinity of Phoenix Brick Yard. MCAQD has reviewed the results of this monitoring, along with ADEQ's conclusions and recommendations. Monitoring results indicated that hydrogen fluoride was present in an ambient air sample collected on February 25, 2003, at a concentration of approximately 20 parts per billion. The 24-hour Arizona Ambient Air Quality Guideline (AAAQG) for hydrogen fluoride is 24 parts per billion. However, due to various issues that arose during testing, such as wind direction, precipitation, monitor location, and sampling time, ADEQ recommended that sampling be

performed for an extended period with typical meteorological conditions before drawing conclusions. ADEQ also recommended the following:

- Further sampling needs to be performed at a location that is more often downwind of the brick kiln, because winds in Phoenix are typically east-west, and sampling was performed north of the brickyard;
- Higher time resolution data are necessary to determine if the 1-hr AAAQG is being exceeded;
- More HF and HCl samples, including duplicate samples, need to be collected to increase confidence in the data.

Due to the lack of sufficient monitor locations, monitoring frequency, abnormal meteorological conditions, and the number of samples collected, MCAQD believes the results do not provide meaningful data that could be used in making permit decisions with respect to Phoenix Brick Yard. Please contact Ms. Darcy Anderson of ADEQ at (602) 771-7665 for questions related to sampling procedures, environmental conditions during testing, monitor location, and timing of sample collection.

With respect to permitting hazardous air pollutants (HAPs), MCAQD's policy is to conduct or request the facility to conduct air dispersion modeling to determine if HAP concentrations at the facility boundary exceed the AAAQGs. Phoenix Brick Yard conducted air dispersion modeling of hydrogen fluoride and determined an emission rate at which the hydrogen fluoride concentration at the property boundary does not exceed the AAAQG for hydrogen fluoride. This procedure is policy only and goes above and beyond legal requirements for MCAQD to provide information on the impacts of a facility on neighborhoods. However, MCAQD is currently working closely with Phoenix Brick Yard, EPA, and the Environmental Finance Center (EFC) to organize meetings with representatives of the community to discuss possible solutions to the environmental issues that Phoenix Brick Yard imposes on the neighborhood. This work is in its preliminary stage; however, possible issues that may be discussed are medical concerns with respect to hydrogen fluoride emissions, neighborhood monitoring and sampling, and possible control technologies available.

Monitoring requirements are included in Title V permits as a way to determine the compliance status with respect to applicable requirements. AAAQGs are not enforceable standards, and therefore, compliance with AAAQGs is not an applicable requirement. Therefore, MCAQD lacks legal authority to require Phoenix Brick Yard to conduct off-site monitoring and sampling to the extent discussed in the comment. However, Phoenix Brick Yard will be required to conduct stack testing for hydrogen fluoride emissions from the kiln stack. Results will confirm whether or not an appropriate hydrogen fluoride emission rate was used in air dispersion modeling, which is used to predict contaminant concentrations at various distances from the stack. Results will also be used to determine HF emission factors used in emission calculations, which will be used to determine compliance with the HF emission limit. Although the stack test will be required once during the permit term, MCAQD believes it is possible to obtain results that are representative of normal operations.

The results of soil sampling conducted in the vicinity of another source within Maricopa County did not show a "distinct footprint" of fluoride in the soil as one commenter stated. Soil samples were obtained in the immediate vicinity of the facility (i.e., Sumitomo Sitix) and at regular intervals away from the facility. Independent analysis of the soil samples for total fluoride concentration was conducted and the test results reviewed. The quantity of fluoride detected was within the range of that which might occur naturally in desert soils. A comparison of the average fluoride concentration of the samples to the ADEQ "Soil Remediation Level" (SRL) for fluoride showed the sample concentration to be significantly less than the residential and the non-residential SRL.

**Comment 5d:** *The record keeping itself and the types of testing and sampling are insufficient to assure compliance. There is no provision to sample and analyze the raw materials clay for fluorine content to*

*determine fluctuations, variations, and/or deviations in fluorine content of the clay raw material, which would have an effect on the amounts of hydrogen fluoride being emitted. The agency's own records show that the test method to be used for conducting a mass balance on the fluorine content of the brick to estimate hydrogen fluoride emissions is not an EPA approved test method.*

**Response 5d:** According to proposed Permit Condition 22, Phoenix Brick Yard will be required to conduct mass balance testing for fluorine within the brick before and after firing in the kiln. Each test will include three representative samples each of brick mixture used in normal operations. Measuring the fluorine content of the raw brick (i.e., brick prior to firing) is essentially the same as analyzing the clay raw material. Since all the fluorine that is lost is assumed to be emitted as hydrogen fluoride, this method is conservative for estimating hydrogen fluoride emissions. Since Phoenix Brick Yard will be required to conduct this mass balance testing three times per year, MCAQD believes that a sufficient amount of data will be collected to determine variations in the fluorine content of the raw material.

There is no EPA approved test method for determining the fluorine content of the raw bricks or the finished bricks. Therefore, MCAQD reviewed and approved the test method proposed by Phoenix Brick Yard for the mass balance testing of fluorine. MCAQD believes that the proposed test method will produce scientifically acceptable results and is technically feasible. This test method is a mass balance determination of fluorine within the brick. It is assumed that 100% of fluorine lost is converted to hydrogen fluoride and is emitted into the atmosphere. The test method was obtained from a technical report titled, An Engineering Based Study to Minimize the Impact of Requirements of the Clean Air Act in Brick Manufacturing, published by Clemson University.

In addition, Phoenix Brick Yard will be required to conduct a stack test for hydrogen fluoride. Results of this testing will be used to correlate the actual hydrogen fluoride emissions with the fluorine content of the raw bricks. This will allow for verifying the validity of the fluorine sampling method required in the permit.

Each test shall include three representative samples each of brick mixture used in normal operations.

**Comment 5e:** *It is inappropriate to have a permit condition that allows 180 days after permit issuance for an initial stack test. The facility has been operating for decades. Any stack testing should occur within 30 days. This is an illegal permit condition because it limits access to the type of evidence that the public, the EPA, and MCAQD may rely upon to show that the facility is violating the permit. It is also illegal because it limits the type of evidence that the public may rely upon to show that the facility is violating its air quality permit, and limits or prevents the public from enforcing certain requirements.*

**Response 5e:** The commenter has not specifically stated why or under what conditions compliance cannot be shown or what requirements cannot be enforced. Consequently, MCAQD is unable to provide a response to the objections raised in this comment. Maricopa County Rule 270 §400 allows up to 180 days for a performance test to be performed. Allowing 180 days after permit issuance for a source to conduct performance testing gives the facility time to complete a test protocol and allows MCAQD time to review such protocol. In addition, allowing 180 days before conducting a performance test is consistent with the length of time allowed by U.S. EPA pursuant to 40 CFR Parts 60 and 63.

## **6. Compliance History**

**Comment 6a:** *The compliance records show that nine citizen complaints have been filed for the brickyard since 1986. The nature of the complaints were generally "odor and dust concerns" and that*



*the complaints were "investigated and the appropriate action or determination was conducted." However, there is no discussion about what constitutes "appropriate action." Additionally, this facility received two compliance notices on December 7, 2000 for failure to keep up with the required paperwork. Plus at one time the facility (date and duration not mentioned) the facility was asked to remove "rain caps" that were placed over the kiln stacks. The caps interfered with the vertical discharge of the smoke, instead the smoke was dispersed horizontally and the potential for pollutants and odors to reach the neighborhood was increased. The permit is not clear how long the facility operated in this "unapproved" manner.*

**Response 6a:** Appropriate action for the odor and dust complaints include conducting an investigation to determine the cause of the odor or excessive dust; removal (or other action) of the odor source, if detected; and if necessary, application of dust suppressant to control dust. The compliance status notifications (CSNs) issued to Phoenix Brick Yard on December 7, 2000 were due to the failure of Phoenix Brick Yard to submit an Operations and Maintenance (O&M) Plan for the four baghouses; and failure to maintain records of weekly fill tube, vapor valve and spill containment inspections on gasoline storage tanks. As a result of the CSNs, Phoenix Brick Yard submitted the required O&M Plans on January 2, 2001. The O&M Plans were approved by the Department on September 24, 2001. In addition, Phoenix Brick Yard began to immediately maintain records of weekly fill tube, vapor valve and spill containment inspections.

In a letter from the Department, dated September 19, 2002, Phoenix Brick Yard was notified that the air quality dispersion model provided in the Title V application did not account for the presence of the rain caps on the kiln stacks. Phoenix Brick Yard was asked to either resubmit modeling results that are representative of facility operations (i.e., stack configuration) or remove the rain caps to ensure that the facility is operating consistently with the model input parameters. On October 1, 2002, Phoenix Brick Yard removed the rain caps. Since the presence of the rain caps on the kiln stacks is not considered a compliance issue (i.e., presence of rain caps is not considered operating in an "unapproved" manner and is not a violation of County rules), the discussion of this issue has been moved from the Section IV (Compliance History) to Section X (Modeling) of the Technical Support Document.

**Comment 6b:** *The woman you made mention of the fact that from, I believe it was '86 until this year, you only received 9 complaints? You can't hardly make or file a complaint without knowing how, right? You do agree to that, right?*

*Now, Mr. Peplau knows that he gave me, he had somebody fax me some forms of complaint. This is the only thing we did. And Ruby and I, I know two of them went in 2002. We got two formal complaints. Now what was the results of those complaints? We never did find out. You know, you did receive them, though. You know, maybe you lose them. I can understand if you get on the telephone and call in a complaint, but when you make a complaint and either mail or fax it in, that's evidence to show that there are complaints about this brickyard.*

**Response 6b:** As of the date of the public hearing (March 11, 2003), MCAQD had records of 9 complaints regarding Phoenix Brick Yard that had been filed. MCAQD makes every effort to inform the citizens of Maricopa County on how to file a complaint. Complaints can be submitted via mail, fax (602-506-6789), telephone (602-506-6616), and internet ([www.maricopa.gov/envsvc/communit/Complain.asp](http://www.maricopa.gov/envsvc/communit/Complain.asp)). In addition, MCAQD makes every effort to follow-up with the person filing the complaint, if the complainant left their telephone number or some other type of contact information.

For information regarding a specific complaint, please contact MCAQD's complaint hotline at (602) 506-6616 and provide the date the complaint was filed or the complaint number assigned by MCAQD. For information regarding typical complaints about Phoenix Brick Yard, please refer to Response 10a.

## 7. Maximum Achievable Control Technology (MACT) Standards

**Comment 7a (Paraphrased):** MCAQD received many comments regarding the applicability of the MACT subpart for brick manufacturers. One commenter asked how is that the hydrogen fluoride emissions from Phoenix Brick Yard's facility can be uncontrolled. Another comment points out that if Phoenix Brick Yard was forced to install the controls specified in the MACT subpart, hydrogen fluoride emissions would be significantly reduced. One commenter asks if the absence of any control technology on the hydrogen fluoride emissions constitute MACT. Another comment implies that waiting for the MACT rule to be promulgated by the US EPA would provide some level of control of hydrogen fluoride emissions and would thus be more protective of public health<sup>2</sup>. Many comments state the hydrogen fluoride emissions from Phoenix Brick Yard's facility are subject to the control requirements of the MACT subpart for brick manufacturers. Other comments imply that the "MACT Hammer" applies to Phoenix Brick Yard and as such, a MACT permit (i.e., a permit requiring control of HF) should have been issued to Phoenix Brick Yard before May 15, 2002. One comment indicates that the agreement between the EPA and Sierra Club to extend the deadlines specified in the MACT Hammer rule does not obviate the federal law legislated by the U.S. Congress, which required case-by-case MACT determinations for sources in which EPA failed to promulgate a MACT standard for that source category in a timely manner.

### **Response 7a:**

#### MACT Applicability

The Department agrees that hydrogen fluoride emissions would be significantly reduced if Phoenix Brick Yard were to install the control technology specified in the MACT subpart. However, the MACT subpart, as written by the US EPA, allows facilities with an existing kiln an exemption from the requirements of the MACT if such facilities have a federally enforceable permit condition that restricts kiln operation to less than 10 tons of fired product per hour, averaged over a 12-month rolling period. Since the proposed permit for Phoenix Brick Yard contains such a limit, MCAQD does not have the legal authority to "force" Phoenix Brick Yard to install the control devices specified in the MACT subpart.

Waiting for the MACT to be promulgated before issuing a permit is a moot point since the MACT subpart for brick manufacturers was issued on February 28, 2003 and published in the Federal Register on May 16, 2003. Furthermore, newly promulgated requirements typically establish compliance dates, which dictates when a source subject to a particular standard must come into compliance with the standard. In the case of the MACT subpart for brick manufacturers, existing sources are allowed until May 16, 2006 to comply with the provisions of the MACT subpart. Therefore, waiting until the MACT subpart is issued would have had no effect on the proposed permit.

#### MACT Hammer

On May 20, 1994, the EPA promulgated a rule [40 CFR Part 63, Subpart B -- Requirements for Control Technology Determinations for Major Sources in Accordance With Clean Air Act Sections, Sections 112(g) and 112(j)] which established requirements for implementing the MACT Hammer. This rule was subsequently amended on May 14, 1999, April 5, 2002, and May 8, 2003. While the settlement agreement

<sup>2</sup> At the time the permit for Phoenix Brick Yard was proposed the MACT subpart for brick manufacturers was only proposed by the US EPA. The MACT subpart was issued on February 28, 2003 and published in the Federal Register on May 16, 2003, subsequent to the hearing for Phoenix Brick Yard.

between the Sierra Club and the EPA does not obviate the requirements of the federal law, MCAQD has complied with Subpart B of 40 CFR Part 63, along with all amendments to this rule with respect to the implementation of the MACT Hammer.

As indicated in 40 CFR Part 63.56(a), if the EPA promulgates a given MACT standard for the applicable source category before the permit application is approved, the permit must reflect the promulgated standard, rather than a case-by-case MACT determination. The MACT subpart for brick manufacturers was issued prior to the MACT Hammer deadline pursuant to the amendments to 40 CFR Part 63, Subpart B. Therefore, the permit must reflect the promulgated standard, instead of a case-by-case MACT determination. As previously discussed, the promulgated MACT rule for brick manufacturers allows an exemption from the requirements of the MACT subpart if the facility limits production to less than 10 tons of fired product per hour.

#### Detailed MACT Hammer History

Section 112(c) of the Clean Air Act (CAA) requires EPA to list categories and subcategories of major sources and area sources of Hazardous Air Pollutants (HAP). One such subcategory that EPA listed was Brick and Structural Clay Products Manufacturing. Section 112(d) of the CAA requires the EPA to establish National Emission Standards for Hazardous Air Pollutants (NESHAP) for the listed categories and subcategories. Deadlines for promulgating such standards are required by Section 112(e) of the CAA. The NESHAP (also referred to as MACT – Maximum Achievable Control Technology) for the Brick and Structural Clay Products Manufacturing category was scheduled to be promulgated by November 15, 2000. Section 112(j) of the CAA (also known as the MACT Hammer) applies if the EPA misses a deadline for promulgation of a standard. Section 112(j) requires an owner or operator of a major source in a source category, for which the EPA failed to promulgate a Section 112(d) standard, to submit a permit application 18 months after the missed promulgation deadline. In other words, if the EPA failed to promulgate the MACT standard for the Brick and Structural Clay Products Manufacturing subcategory by November 15, 2000, an owner or operator of a brick manufacturing facility would have to submit a permit application for a case-by-case MACT determination by May 15, 2002.

On May 20, 1994, the EPA promulgated a rule [40 CFR Part 63, Subpart B -- Requirements for Control Technology Determinations for Major Sources in Accordance With Clean Air Act Sections, Sections 112(g) and 112(j)] that established requirements for implementing the MACT Hammer. Subsequently, this rule (i.e., the section 112(j) rule) was amended on April 5, 2002. The amendments created a 2-part permit application process for permits required in the event that EPA fails to promulgate a MACT standard by the required deadline. Part 1 of the permit application, due May 15, 2002, is a simple notification that provides basic information about the source. Based on the April 5, 2002 amendments, Part 2 of the application would be due 24 months after submittal of the Part 1 application. Part 2 will contain more detailed, comprehensive information about the source. The permitting authority has up to 18 months to develop the terms and conditions of a case-by-case MACT for the source and issue the permit. If a MACT standard is promulgated prior to permit issuance, the case-by-case MACT development process is discontinued and the permit would ultimately incorporate the MACT standard.

After promulgation of the April 5, 2002 amendments, EarthJustice, representing the Sierra Club, filed a petition seeking judicial review of the rule. The EPA and EarthJustice reached and signed a tentative settlement agreement ([www.epa.gov/airlinks/112j.html](http://www.epa.gov/airlinks/112j.html)) on August 15, 2002. The settlement agreement called for proposing amendments to the section 112(j) rule that would decrease the time to submit the Part 2 application from 24 months to 12 months after submittal of the Part 1 application. Amendments to the section 112(j) rule reflecting the settlement agreement were proposed on December 9, 2002. In the proposed amendments, the due date for Part 2 of the application for facilities subject to the Brick and Structural Clay Products Manufacturing MACT standard would be due on May 15, 2003.

Further negotiations with the Sierra Club resulted in a final settlement agreement in March 2003. EPA adopted final amendments to the section 112(j) rule on May 8, 2003. Like the proposed amendments, the final amendments called for decreasing the time to submit the Part 2 application from 24 months to 12 months after submittal of the Part 1 application. However, since the MACT standard for the Brick and Structural Clay Products Manufacturing category was issued on February 28, 2003, the EPA did not believe it was necessary to take further action concerning the proposed Part 2 application deadline (i.e., May 15, 2003) for this category in the section 112 rule amendments. Therefore, as indicated in 40 CFR Part 63.56(a), if the EPA promulgates a given MACT standard for the applicable source category before the permit application is approved, the permit must reflect the promulgated standard, rather than a case-by-case MACT determination.

In summary, the MACT standard for brick yards was to be promulgated by November 15, 2003. The Part 1 application was due by May 15, 2002 and the Part 2 application was to be due by May 15, 2003. However, the EPA adopted the MACT standard for Brick and Structural Clay Products Manufacturing on February 28, 2003 (i.e., prior to the due date of Part 2 of the application). Therefore, Part 2 of the application was not required and the permit for Phoenix Brick Yard is to reflect the promulgated standard, rather than a case-by-case MACT determination. The promulgated MACT standard for Brick and Structural Clay Products Manufacturing allows an exemption for sources that have an enforceable permit condition limiting kiln production to less than 10 tons per hour. Phoenix Brick Yard has accepted such a limit in the proposed permit. Therefore, Phoenix Brick Yard is not subject to the MACT subpart promulgated by the EPA or a case-by-case MACT standard per section 112 of the CAA.

**Comment 7b:** *The facility has claimed that it cannot afford the cost of installing and operating the control equipment for hydrogen fluoride. However, a review of the facility's own Pollution Prevention file at the Arizona Department of Environmental Quality shows that the facility knew years ago, 1997, that the hydrogen fluoride control equipment and technology is affordable and widely used in Europe. Further, readily available information indicates that the facility has good credit and annual sales \$10-20 million per year, and clearly has the financial ability to afford this control equipment.*

*The residents of the overwhelmingly ethnic minority community adjacent to and affected by the emissions from the Phoenix Brick Yard deserve the same right to clean air and enjoyment of their property and lives as other Americans and Europeans. Instead of working to protect these Americans, this agency has instead delayed the permitting of this facility's hydrogen fluoride emissions for five years, and now seeks to circumvent the 95% reduction in the new EPA MACT standard for brickyards.*

**Response 7b:** Regardless of their financial status, Phoenix Brick Yard is not required by current regulations to utilize control technology to reduce hydrogen fluoride emissions, as discussed in Response 7a. Therefore, MCAQD is not circumventing the MACT standard.

**Comment 7c:** *How is it that synthetic minors permitted by this agency have to utilize BACT while a facility (Phoenix Brick Yard) that requires a Title V, MACT permit (which is inherently more stringent according to federal law) requires no emission controls at all? Please explain.*

**Response 7c:** County BACT requirements were originally contained in County Rule 210 (Installation Permits) §303, which was adopted July 13, 1988. BACT requirements are currently contained in County Rule 241. BACT is required for new or modified stationary sources which emit more than a specified level of volatile organic compounds (VOC), nitrogen oxides, sulfur oxides, carbon monoxide, particulate matter, or particulate matter with an aerodynamic diameter less than 10 micrometers (PM10). Hydrogen fluoride is not one of the pollutants for which BACT requirements apply. Therefore, Phoenix Brick Yard is not required to implement BACT for its hydrogen fluoride emissions. As for other pollutants emitted from Phoenix Brick Yard's facility, these emissions are not subject to BACT requirements because the facility was constructed prior to the adoption date of the BACT requirements. In addition, based on a file

review, the facility has not undergone a modification which resulted in an increase in emissions that would trigger BACT applicability.

MCAQD has classified Phoenix Brick Yard as a major source of hazardous air pollutants that is required to obtain a Title V permit pursuant to Maricopa County Air Pollution Control Regulations, Rule 200 §302. However, it should be noted that not all synthetic minor sources are required to implement BACT. For example, a new source may voluntarily accept a VOC emissions limit of 24 tons per year (i.e., less than the current VOC major source threshold level of 50 tons per year), and thus be considered a synthetic minor source. This emissions limit would also be less than the BACT threshold level of 25 tons per year, and therefore, the facility would not be subject to BACT requirements.

## **8. RACT/BACT**

**Comment 8a:** *Maricopa County Rule 302.1 (h)(6) states: "For any major source operating in a nonattainment area for any pollutant(s) for which the source is classified as a major source, the source shall comply with reasonably available control technology (RACT) as defined in Rule 100 of these rules." Phoenix is a nonattainment area and no controls whatsoever does not constitute RACT. The County is violating its own rule here.*

**Response 8a:** The citation referenced in the comment only specifies a section number. After reviewing the Rules, it is assumed that the comment refers to Rule 210 §302.1(h)(6). Maricopa County is currently classified as a nonattainment area for ozone, PM10, and CO. Phoenix Brick Yard is classified as a major source due to their emissions of hazardous air pollutants, not due to emissions of a pollutant for which the County is classified as nonattainment. Therefore, emissions of hazardous air pollutants from Phoenix Brick Yard's facility are not subject to RACT pursuant to Rule 210 §302.1(h)(6). However, it should be noted that, although Phoenix Brick Yard is not a major source of PM-10, the baghouses associated with the mixing operations, and the watering of unpaved areas and stockpiles are considered RACT for PM-10.

**Comment 8b:** *Maricopa County Rule 302.1 (b) (4) states that: "The permit shall specify applicable requirements for fugitive emission limitations, regardless of whether the source category in question is included in the list of sources contained in the definition of major source in Rule 100 of these rules." The permit is silent or insufficient regarding emissions of Hydrogen Chloride and carbon monoxide. There is a requirement for Best Available Control Technology (BACT) for the two pollutants, but there is no evidence that the proposed permit requires this. Until the proposed permit addresses these in a more straightforward manner, the permit should be denied.*

**Response 8b:** The rule citation referenced in the comment only specifies a section number. After reviewing the Rules, it is assumed that the comment refers to Rule 210 §302.1(b)(4). The term "fugitive emissions" is defined in Maricopa County Rule 100 §200.55 as, "Any emission which could reasonably pass through a stack, chimney, vent, or other functionally equivalent opening." Emissions of hydrogen chloride and carbon monoxide from the Phoenix Brick Yard facility are emitted at the kiln and dryer stacks. Since these emissions exhaust through a stack, they are not considered fugitive emissions. Carbon monoxide is also emitted from mobile source such as front-end loaders, haul trucks, forklifts, and automobiles. These mobile sources are not regulated by a Title V permit. For these reasons, the Title V permit does not address fugitive emissions of hydrogen chloride or carbon monoxide.

The commenter has not clearly indicated why they believe hydrogen chloride and carbon monoxide emissions from Phoenix Brick Yard's facility are subject to BACT. Maricopa County Rule 241 §301 requires BACT for a new stationary source or a modification to a stationary source if the new source (or the modification by itself) emits more than 150 pounds per day or 25 tons per year of volatile organic

compounds, nitrogen oxides, sulfur oxide, or particulate matter; or more than 85 pounds per day or 15 tons per year of PM10; or more than 550 pounds per day or 100 tons per year of carbon monoxide. Hydrogen chloride is not one of the pollutants for which BACT requirements apply. Therefore, Phoenix Brick Yard is not required to implement BACT for its hydrogen chloride emissions.

Furthermore, this rule was originally adopted as Rule 210 §304 on July 15, 1988 and is currently required under Rule 241 §301. Phoenix Brick Yard is not considered a new source since construction of the facility predates the adoption date of the BACT rule. In addition, according to MCAQD's files, Phoenix Brick Yard has not modified the facility in such a manner as to result in an emissions increase exceeding the aforementioned BACT thresholds. Therefore, Phoenix Brick Yard is not subject to BACT requirements as stated in the comment.

**Comment 8c:** *Does the total absence of any control technology whatsoever on the 52-tons of hydrogen fluoride from the Phoenix Brick Yard constitute Best Available Control Technology? If so, please explain how?*

**Response 8c:** Hydrogen fluoride is not one of the pollutants for which BACT requirements apply. Pursuant to Maricopa County Rule 241, BACT is required for new or modified stationary sources which emit more than a specified level of volatile organic compounds (VOC), nitrogen oxides, sulfur oxides, carbon monoxide, particulate matter, or particulate matter with an aerodynamic diameter less than 10 micrometers. Therefore, Phoenix Brick Yard is not required to implement BACT for its hydrogen fluoride emissions pursuant to Rule 241.

**Comment 8d:** *Does the total absence of any control technology whatsoever on the 52-tons of hydrogen fluoride from the Phoenix Brick Yard constitute Reasonably Available Control Technology? If so, please explain how?*

**Response 8d:** Hydrogen fluoride is not one of the pollutants for which RACT requirements. Pursuant to Maricopa County Rule 241, RACT is required for new or modified stationary sources which emit up to a specified level of volatile organic compounds (VOC), carbon monoxide, particulate matter, or particulate matter with an aerodynamic diameter less than 10 micrometers (PM10). In addition, Rule 210 §302.1h(6) requires a major source operating in a nonattainment area for any pollutant(s) for which the source is classified as a major source to comply with RACT. Maricopa County is currently classified as a nonattainment area for ozone, PM10, and CO. Phoenix Brick Yard is classified as a major source due to their emissions of hazardous air pollutants, not due to emissions of a pollutant for which the County is classified as nonattainment. Therefore, Phoenix Brick Yard is not required to implement RACT for its hydrogen fluoride emissions.

## **9. Monitoring, Record Keeping & Reporting**

**Comment 9a:** *Record Keeping/Lack of Public Access Violation of Title V – A Title V permit must have provisions that allow the public sufficient information to determine whether the facility is in compliance. The record keeping requirements in the proposed permit are such that the records are kept at the facility and there is no provision for public access or inspection. Therefore, unless the facility is required to file its records with the custodian of records so that the public may have access to the reports, the permit must be denied.*

**Response 9a:** In accordance with Maricopa County Rule 210 §302.1e, the permit shall incorporate all applicable reporting requirements and require the submittal of reports of any required monitoring at least every six months. In addition, Permit Condition No. 21 of the proposed permit requires Phoenix Brick

Yard to submit semiannual monitoring reports to MCAQD. These reports are to include the required records that are to be maintained on-site. In addition, pursuant to Maricopa County Rule 210 §302.1h(5) and Permit Condition No. 16.G of the proposed permit, Phoenix Brick Yard is required to provide the Control Officer with any information to determine whether cause exists for revising, revoking and reissuing this permit, or terminating the permit, or to determine compliance with the permit. The semiannual reports submitted to MCAQD and any other records provided to MCAQD pursuant to Maricopa County Rule 210 §302.1h(5) and Permit Condition No. 16.G will be considered public record and available for review by the public. The commenter has not specifically shown any applicable reporting requirements that are not being met.

**Comment 9b:** *Provision [15.D] of the record keeping requirements limits the Control Officer's access to all of the facility's records to when the Control Officer has "reasonable cause" to believe the Permit has been violated or is in violation of any provision of County Rule 100 or any County Rule. This is an illegal permit condition because it limits access to the type of evidence that the public, the EPA, and the MCAQD may rely upon to show that the facility is violating the permit. It is also illegal because it limits the type of evidence that the public may rely upon to show that the facility is violating its air quality permit, and limits or prevents the public from enforcing certain requirements.*

**Response 9b:** This condition is required pursuant to County Rule 100 §106 and Arizona State Implementation (SIP) Rule 40. The commenter has not specifically stated why or under what conditions compliance cannot be shown or what requirements cannot be enforced. Consequently, MCAQD is unable to provide a response to the objections raised in this comment.

**Comment 9c:** *A Title V permit must have provisions that allow the public sufficient information to determine whether the facility is in compliance. Provision [16.A] requires the facility to submit an annual emissions inventory upon request of the Control Officer and as directed by the Control Officer. The permit must be modified to require an annual emissions inventory that will be made available to the public, or the permit must be denied.*

**Response 9c:** County Rule 100 §505 requires the owner or operator of a business to complete and submit an annual emissions inventory report upon request of the Control Officer. As with all Title V sources, the Control Officer will request that Phoenix Brick Yard submit an annual emissions inventory report. In addition Permit Condition 21.A requires Phoenix Brick Yard to submit a semiannual compliance report, indicating the average daily hydrogen fluoride emissions for each month of the reporting period. Both the annual emissions inventory report and the semiannual compliance report will be available for public review. To review these reports, please contact Mr. Ron Sands at (602) 506-6201.

**Comment 9d:** *The Monitoring and Recordkeeping Requirements for Clay Raw Material Handling in the proposed permit are insufficient to show compliance, and are only to be kept on-site. The proposed permit states that these records must be available to the Control Officer upon request. This is an illegal permit condition because it limits access to the type of evidence that the public, the EPA, and MCAQD may rely upon to show that the facility is violating the permit. It is also illegal because it limits the type of evidence that the public may rely upon to show that the facility is violating its air quality permit, and limits or prevents the public from enforcing certain requirements. All daily logs must be available through the MCAQD's custodian of public records for full public review. Unless this condition is changed, the permit is illegal.*

**Response 9d:** Title V §504(a) of the U.S. Clean Air Act (CAA) requires the submittal of monitoring "reports" at least every six months. The CAA does not require the submittal of all monitoring data. To do so would the permitting authority with the sheer volume of material. Rather, the intent of this section of the CAA is for sources to review data required to be collected and submit a summary of relevant data

that will assist the permitting authority in determining the source's compliance with the applicable requirements. Although maintaining the records specified in Permit Condition 20.C (Monitoring and Recordkeeping Requirements for Clay Raw Material Handling) is an applicable requirement pursuant to Maricopa County Rule 316, these records are not intended for the purpose of monitoring for compliance with an applicable emission limitation, production limitation, or other standard. Therefore, it is unnecessary to require Phoenix Brick Yard to submit the records required in this permit condition to MCAQD in the semiannual report. However, the Control Officer has the regulatory authority pursuant to Maricopa County Rule 210 §302.1h(5) to require these records to be submitted to MCAQD upon request. In addition, Permit Condition 17.B requires Phoenix Brick Yard to allow the Control Officer to have access to any records that are required to be kept under the conditions of the permit. Also, pursuant to Permit Condition 21, Phoenix Brick Yard is required to report all instances of deviations from the permit conditions during each semiannual compliance reporting period. All terms and conditions in a Title V permit are enforceable by citizens under the CAA. Since Phoenix Brick Yard will have a Title V permit, the public may invoke this right.

**Comment 9e:** *The Monitoring and Recordkeeping Requirements for Production Limits and Hydrogen Fluoride Emissions Limits in the proposed permit are insufficient to show compliance, and are only to be kept on-site. The records must be made available to the Control Officer upon request. This is an illegal permit condition because it limits access to the type of evidence that the public, the EPA, and MCAQD may rely upon to show that the facility is violating the permit. It is also illegal because it limits the type of evidence that the public may rely upon to show that the facility is violating its air quality permit, and limits or prevents the public from enforcing certain requirements. All of these requirements must be available through the MCAQD's custodian of public records for full public review. Unless this condition is changed, the permit is illegal.*

**Response 9e:** The commenter has not specifically stated why or under what conditions compliance cannot be shown or what requirements cannot be enforced. Consequently, MCAQD is unable to provide a detailed response to the objections raised in this comment. However, Permit Condition 20.F (Monitoring and Recordkeeping Requirements for Production Limits and Hydrogen Fluoride Emissions Limits) requires Phoenix Brick Yard to maintain various records related to production limits and hydrogen fluoride emissions limits. Permit Condition 21.A requires these records to be submitted to MCAQD in a semiannual compliance report, and also requires Phoenix Brick Yard to report all instances of deviations from the permit conditions during each semiannual compliance reporting period. In addition, pursuant to Permit Condition 17.B, Phoenix Brick Yard is required to allow the Control Officer to have access to any records that are required to be kept under the conditions of the permit. These reports will be available for full public review. To review these reports, please contact Mr. Ron Sands at (602) 506-6201.

**Comment 9f:** *Where is particulate matter monitored? Right there at the property? Who is responsible for getting the accurate levels? And how often are the accurate levels measured?*

**Response 9f:** Particulate matter emitted from mixing raw materials is controlled by baghouses. To monitor the baghouses for proper operation, Phoenix Brick Yard is required to measure the static pressure drop across each baghouse on an hourly basis. In addition, Phoenix Brick Yard will be required to conduct a facility inspection on a daily basis to observe visible emissions from devices capable of emitting particulate matter. Testing of the baghouses is required once during the 5-year term of the permit. Results of the testing will be used to determine if Phoenix Brick Yard is capable of operating the baghouses at a particulate outlet concentration of no more than 0.02 grains per dry standard cubic foot, which is the required limit specified in the permit. Phoenix Brick Yard is also required to implement proper dust control practices, which includes regular application of a dust suppressant such as water.



However, to report a complaint about dust emitted from Phoenix Brick Yard, please call MCAQD's complaint line, at (602) 506-6616.

#### **10. Dust and Odor**

**Comment 10a:** *The Phoenix Brick Yard is across the street from homes. The MCAQD is aware of complaints from local residents and others of strong acid odors believed to be emanating from the facility and the complaints of adverse health effects, particularly respiratory problems. There are no other facilities permitted by MCAQD in the vicinity of the Phoenix Brick Yard that could be the source of these acid odors. It is a violation of the federally enforceable SIP for a facility to emit such large amounts of air pollution or odors that it causes the loss of enjoyment of nearby property. The failure of MCAQD to stop the facility from emitting such acid odors is another, ongoing, civil rights violation.*

**Response 10a:** MCAQD has received complaints from citizens regarding dust and odor from Phoenix Brick Yard. As a result of such complaints, MCAQD conducts thorough investigations to determine the cause of possible odor and dust problems. For most of the complaints received, the MCAQD inspector did not observe excessive dust or odors, and noted that proper dust control techniques were being employed at the facility. However, during one complaint inspection the inspector noted an odor that smelled like a solvent or melting plastic. The inspector determined that the odor was coming from Advanced Lining Solutions, a nearby facility. In addition, the inspector observed visible emissions coming from the kiln stacks. When seen against the backdrop of the blue sky, the opacity was 5% or less. According to a Phoenix Brick Yard employee, the smoke is produced when Phoenix Brick Yard makes a particular brick product called 'Hacienda'. With the rain caps in place over both stacks, the exhaust from the kiln does not disperse vertically, but disperses in a horizontal direction. At the time of the observation, the wind was blowing predominately due north between 5 and 10 miles per hour. At the fence line directly north of the stacks, abutting Mohave St., the inspector detected the burning smell of the smoke. The inspector explained to the Phoenix Brick Yard employee that having the rain caps on the kiln stacks and the resulting horizontal dispersion of the kiln exhaust could be a cause of the odor complaints received from the area. The inspector suggested, if it were operationally feasible to do so, Phoenix Brick Yard should remove the rain caps and allow the kiln exhaust to disperse vertically. The rain caps were subsequently removed on October 1, 2002. The inspector also noted the odor of diesel fumes from the plant's forklifts and front-end loader, which were operating at the time of the inspection.

**Comment 10b (paraphrased):** *MCAQD received many comments related to dust and odor. Two commenters stated that Phoenix Brick Yard was not applying water with the water truck nor the sprinklers to control dust, when observed by the commenters. Another commenter complained of a bad aroma in the vicinity of Phoenix Brick Yard, and stated that dust from the facility gets in to the food people eat. Another commenter complained of dust discoloring nearby buildings and complained of dirt in the road that is tracked out by trucks leaving Phoenix Brick Yard's facility.*

**Response 10b:** Phoenix Brick Yard is required to maintain a dust control plan for the facility. In addition, Phoenix Brick Yard is required to revise the dust control plan if the plan is found to be inadequate. According to the Phoenix Brick Yard's Dust Control Plan, the total area of the facility is 12.5 acres, of which approximately 2.5 acres are disturbed by vehicle travel and material handling operations. The proposed permit, as well as the Maricopa County Air Pollution Control regulations requires Phoenix Brick Yard to implement dust control measures. Phoenix Brick Yard controls dust from areas that are disturbed by vehicle travel and material handling by using a sprinkler and a water truck. According to the Dust Control Plan, the total water usage for the sprinkler system and the water truck combined is approximately 155,000 gallons per month. The proposed permit also requires Phoenix Brick Yard to maintain a daily written log that records the actual application or implementation of dust control

measures. Typically a crust will form on the soil surface after the soil is wetted. Although the crust may appear dry, it minimizes dust emissions unless the area is disturbed.

Phoenix Brick Yard is also required to minimize trackout of dust and dirt from trucks, clean up spillage or trackout when such spills and trackout extend a distance of 50 feet or more, and use baghouses to control particulate matter emissions from mixing operations.

MCAQD conducts regular inspections of permitted facilities to determine compliance with the permit and the County regulations. Based on the latest inspection of the facility, it was determined that Phoenix Brick Yard was in compliance with all applicable requirements. However, to file a complaint regarding odors, dust, spillage, or trackout, please call MCAQD's Complaint Hotline at (602) 506-6616.

**Comment 10c:** *MCAQD Inspectors Not Trained to Detect Odors. – During the informal question & answer/comment period of MCAQD's public hearing, MCAQD confessed that none of its inspectors were trained to detect odor of Hydrogen Fluoride and that it had plans "some day" to conduct such training. In view of the fact that citizens in the area of the Phoenix Brick Yard have complained about odors for years, it is appalling, and revealing, that the MCAQD still has not trained its staff to understand odors to properly investigate. Equally appalling was the characterization of citizens' complaints about the Phoenix Brick Yard facility's odors and health impact by MCAQD employee, Steve Peplau, at the public hearing, when he claimed these citizens' complaints were "exaggerated."*

*It is DWA's position that until such time that odor training for MCAQD's inspectors has been completed that the MCAQD refrain from granting air pollution permits due to its confessed incompetence and should surrender its delegation authority. Considering this, it is even more the height of absurdity to rely on the public to detect odors that they are untrained and uninformed about as a permit condition. Therefore, this permit should be denied, as the odor condition is untenable.*

**Response 10c:** At the time of the hearing MCAQD inspectors were trained to determine if facilities were complying with applicable requirements pursuant to an air quality permit or other air quality regulations. However, MCAQD conducted odor training for its inspectors in November 2003. The odor training enhance the ability of the inspectors to detect and quantify the intensity of odors during regular inspections and during inspections resulting from a complaint.

The proposed permit does not rely upon the public to detect offensive odors for the purpose of monitoring Phoenix Brick Yard's compliance status. Nonetheless, a group of citizens from the area surrounding the Phoenix Brick facility have been trained to assist the MCAQD in positively identifying sources of odors. It should be made clear, however, that MCAQD will continue to conduct a facility investigation upon receiving citizens' odor complaints. The proposed permit does require Phoenix Brick Yard to log all complaints of odors detected offsite.

MCAQD takes citizens' complaints seriously and investigates all complaints received. The comment made by Mr. Steve Peplau, was in response to a citizens' comment implying that MCAQD intends to withhold information from the public by allowing Phoenix Brick Yard to simply "put out less production and nobody [will] know about it."

## **11. Impacts on Public Health**

**Comment 11a (paraphrased):** *MCAQD received many comments regarding public health and specific medical complaints. Several commenters claimed that the community has been plagued with ailments such as headaches, allergies, sinuses, asthma, bronchitis, walking pneumonia, and leukemia. Another*

*commenter discussed their hospitalization for blood clots in both lungs. One commenter claimed that children at a nearby school have asthma at a rate three times higher than the "general population", and another commenter pointed out the need for a neighborhood survey of respiratory problems.*

**Response 11a:** MCAQD considers public health to be a very important issue when making permitting decisions. However, at this time, MCAQD is unaware of any scientific link between Phoenix Brick Yard and specific medical conditions that occur within the surrounding area.

MCAQD always diligently strives to assure that the appropriate regulations are applied to permitted facilities within the scope that the law allows. In fact, MCAQD may not issue a permit to a facility unless it will comply with all legal requirements. Despite lacking legal authority to require facilities to meet the Arizona Ambient Air Quality Guidelines (AAAQG) for hazardous air pollutants (HAPs), MCAQD always encourages facilities that emit HAPs to voluntarily meet the AAAQG. Phoenix Brick Yard has voluntarily accepted a hydrogen fluoride emission limit, which was determined based on the AAAQG for hydrogen fluoride. In doing so, Phoenix Brick Yard has minimized the possibility of exceeding the AAAQG for hydrogen fluoride. The AAAQGs are developed by the Arizona Department of Health Services (ADHS) based on toxicological information. ADHS believes that the AAAQGs are protective of even the most sensitive segment of the population such as asthmatic children. It should be noted however, that the AAAQGs are guidelines and not enforceable standards.

## **12. Other**

**Comment 12a:** *This permit should be categorically denied. This is an illegal permit. The proposed permit violates U.S. federal law and the Maricopa County Environmental Services Department's own rule.*

**Response 12a:** The commenter has not specifically stated how the proposed permit violates U.S. federal law and MCAQD's rules. Consequently, MCAQD is unable to provide a response to the objections raised in this comment.

**Comment 12b:** *The issuance of this air pollution permit would be an intentional violation of Title VI of the U.S. Civil Rights Act. It is inappropriate to permit a major uncontrolled source of hazardous air pollutants, especially a major uncontrolled source of hydrogen fluoride emissions, in a low-income community of color. The adjacent, affected community is overwhelmingly an ethnic minority community. That the affected community is a low-income, ethnic minority community makes the permitting an intentional, discriminatory act because it will have a disproportionate adverse effect on the adjacent community of color. Further, the activities of MCAQD to try to find a way around the new federal MACT requirements of a 95% reduction in the facility's emissions of hydrogen fluoride, instead of merely requiring compliance with the new MACT standard, are further evidence of intentional, discriminatory actions against this community of color. Too bad this agency can't work this hard to prevent air pollution in this community! A related civil rights issue is the aforementioned "MACT Hammer" requirement pursuant to 42 USCA 7412 (j)(2), which required MCAQD to issue a MACT permit to this facility 18 months after the deadline for the EPA to promulgate a MACT standard for brickyards, which was November 15, 2000. MCAQD should have issued a MACT permit to the Phoenix Brick Yard by May 15, 2002.*

**Response 12b:** As a condition of receiving funding under EPA's continuing environmental program grants, MCAQD must comply with EPA's Title VI regulations. These regulations are incorporated by reference into MCAQD's grant. To assist state and local agencies with implementing the Title VI requirements, EPA's Office of Enforcement and Compliance Assurance has published *Interim Guidance for Investigating Title VI Administrative Complaints Challenging Permits*. The interim guidance

acknowledges that permits may create a disparate impact, or add to an existing disparate impact. However, in order to establish a disparate impact there must be adverse impacts specifically associated with the permitted activity.

Thus, if the environmental effects of a project subject to permitting do not rise to the level of "adverse" at any location, then there cannot be any disparate adverse environmental effect. EPA follows five basic steps in its analysis of allegations of discriminatory effects from a permit decision. The first step is to "identify the population affected by the permit that triggered the complaint. The affected population is that which suffers the adverse impacts of the permitted activity." If there is no adverse effect from the permitted activity, there can be no finding of a discriminatory (disparate) effect that would violate Title VI and EPA's implementing regulations. This logic is further discussed in two EPA Appeals Board rulings (Puerto Rico Electric Power Authority, PSD Appeal No. 95-2, and Chemical Waste Management of Indiana, Inc., RCRA Appeal Nos. 95-2) and in an EPA Office of Civil Rights (OCR) determination on the Select Steel facility, October 30, 1998.

Dispersion modeling predicts that the estimated one-hour concentration of hydrogen fluoride emitted by Phoenix Brick Yard will be  $41.0 \mu\text{g}/\text{m}^3$ , which is less than the Arizona Ambient Air Quality Guidelines (AAAQGs) for hydrogen fluoride. The AAAQGs are developed by the Arizona Department of Health Services (ADHS) based on current toxicological information. ADHS believes that the AAAQGs are protective of even the most sensitive segment of the population such as asthmatic children. Consequently, Maricopa County relies on this information and believes this information to be appropriate and representative. Since dispersion modeling predicts the hydrogen fluoride emissions from Phoenix Brick Yard will not result in hydrogen fluoride concentrations that exceed the AAAQGs, Maricopa County believes there are no adverse impacts and thus no disparate effects associated with hydrogen fluoride emissions from Phoenix Brick Yard. Therefore, Maricopa County has not violated Title VI of the U.S. Civil Rights Act.

Regarding MACT requirements, MCAQD did not "try to find a way around the new federal MACT requirements" for Phoenix Brick Yard. As discussed in Response 7a, Phoenix Brick Yard is exempt from the requirements of the MACT subpart. Given the amendments to 40 CFR Part 63 (i.e., the rule describing how 42 USCA 7412 (j)(2) is to be implemented), the MACT Hammer provisions do not apply to Phoenix Brick Yard, also discussed in Response 7a.

**Comment 12c:** *Even the permit process has been discriminatory to the affected community. Census data conveniently available to the Maricopa County Environmental Services Department (MCAQD) indicates that the adjacent community of color has many low-income, monolingual Spanish-speaking adults. None of the proposed permit application or accompanying materials were provided in Spanish. This is discriminatory per se. No permit should be issued until and unless this agency corrects this deficiency.*

**Response 12c:** MCAQD makes a concerted effort to effectively communicate with the citizens of Maricopa County. Notice of the hearing was provided in both English and Spanish and was also published in local Spanish-language newspapers. In addition, a Spanish-speaking translator was provided at the public hearing. Prior to the hearing, the translator offered to provide translation from English to Spanish via headsets that were available to anyone who wanted them. However, none of the attendees accepted this offer. In addition, a charrette was conducted after the public hearing to bring together representatives of the company, a number of local government agencies, the USEPA and the community. Several actual meetings were conducted to allow all parties to have an open dialogue on the facility.

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<sup>3</sup> For further information on the AAAQGs, please contact Mr. Will Humble, Manager of the Environmental Health Sciences Section at ADHS, at (602) 230-5941.

**Comment 12d:** *A "rain cap" on the emissions stack is not an emissions control device and is merely a feeble attempt to do as little as possible about the effect of uncontrolled releases of hydrogen fluoride into the adjoining neighborhood.*

**Response 12d:** MCAQD does not assert that the rain caps were being used at the Phoenix Brick Yard facility as a control device. MCAQD requested Phoenix Brick Yard to remove the rain caps on the kiln stacks in order to allow the unhindered vertical rise of the stack plume. The presence of the rain caps redirected the stack emissions horizontally. The removal of the rain caps will disperse the exhaust which will therefore reduce the concentration of pollutants, reduce odors, and allow operation in a manner consistent with the dispersion modeling. Since dispersion modeling did not account for the presence of rain caps and the results were used, in part, to develop certain permit conditions, Phoenix Brick Yard will be required to keep the rain caps off the kiln stacks, unless appropriate dispersion technology is used to maintain or reduce the concentration of pollutants emitted from the kiln stack at the property boundaries. For additional information on rain caps, please refer to Response 6a.

**Comment 12e:** *Is Phoenix Brick Yard a major or minor source?*

**Response 12e:** Phoenix Brick Yard is classified as a major source of hazardous air pollutants (HAPs) since emissions of hydrogen fluoride exceed 10 tons per year.

**Comment 12f:** *Are the rules legal?*

**Response 12f:** The rules are legal. Maricopa County Air Pollution Control Rules and Regulations are developed in accordance with Title 49, Chapter 3, Article 3 of the Arizona Revised Statutes (A.R.S.). In addition, these rules are approved by the Maricopa County Board of Supervisor in accordance with all public notification requirements.

**Comment 12g:** *What is the length of time of the permit approval period?*

**Response 12g:** Pursuant to Maricopa County Rule 210 §301.8f, the Control Officer is required to take final action on each permit application (i.e. issue or deny a permit) within 18 months after the receipt of a complete application.

**Comment 12h:** *If the Permit is denied, does the plant close? Relocate? What about cleanup?*

**Response 12h:** In accordance with Maricopa County Rule 400 §404, if the Control Officer denies a permit, the applicant may file an appeal, in writing, to the hearing board within 30 days after notice of denial is given. If the hearing board sustains the permit denial, and the facility continues to operate without a permit, MCAQD may take enforcement action upon the owner or operator. Such action may include the issuance of a Notice of Violation for each day the facility operates without a permit, and/or the issuance of an Order of Abatement requiring specific actions to bring the facility into compliance. Pursuant to ARS §49-512 through 49-514 MCAQD could seek an injunction, civil penalties or criminal penalties.

If the facility is relocated within Maricopa County it would require an air quality permit from MCAQD before construction could begin.

MCAQD's air quality regulations would only apply to clean-up activity if they were a potential source of air emissions. For example, soil vapor extraction systems used for cleaning up gasoline releases are subject to air rules.

**Comment 12i:** *You said they only had two kilns at the property, right? I know they have some type of rising kiln right next to the street, which is 7<sup>th</sup> Avenue. So that should be included also as part of the one kiln that would produce some type of hydrochloric, since this is a kiln too. It's inoperable. If it's not being used, what would govern them to not use it at a later date, if it's not being used right now? So my question is how many active kilns do they have? If the third kiln that they have there is not being used, what's to enforce them reopening that kiln and who's going to monitor that?*

**Response 12i:** Phoenix Brick Yard has two active kilns on the property. The tunnel kiln produces the standard brick product, while the roller kiln produces specialty brick products. The roller kiln accounts for approximately 1% of total brick production. There is also an older kiln (round kiln) on the property which is not active and is currently used for storage. In the permit application, it was indicated that this kiln is occasionally used for heat treating steel. However, based on a conversation with the plant manager during a site visit, Phoenix Brick Yard has not used the kiln for heat treating steel in several years.

The MACT standard (Subpart JJJJ) for manufacturers of brick and structural clay products categorizes kilns into two categories; 1) tunnel kilns and 2) batch (periodic) kilns. Phoenix Brick Yard's roller kiln is a type of tunnel kiln. The round kiln is a batch kiln. Only tunnel kilns are potentially subject to the requirements of MACT Subpart JJJJ. Therefore, the round kiln located at Phoenix Brick Yard was not included in the kiln production limit of 9.9 tons of fired product per hour. However, since the permit application indicated that the round kiln is not used for brick manufacturing, MCAQD has included a provision in Permit Condition 19.F that prohibits the use of the round kiln for firing brick. If Phoenix Brick Yard wants to use the round kiln for brick manufacturing, Phoenix Brick Yard would be required to submit an application for a permit revision.

**Comment 12j:** *I'm glad this is going fast, so I can get over to Roosevelt School Board meeting, which is my district. Because my concern is also the health and safety of children, and I want to foremost state due to the fact that IWU was just displaced for their so-called reports and quote "regulations and compliances", which the biggest breach of public trust was done when they were arrested themselves for breaching the community's trust as a good neighbor. What tonight will you all be able to tell this community that is not being well represented here tonight, due to the mistrust that IWU has already brought to this community, what tonight that you going to tell me that's in the record of Phoenix Brick Yard, that five years of permit process has elapsed, and the issue pertaining to the brick yard is strictly complying and putting the scrubber equipment into the stacks? Now, that is the key element of compliance.*

*And since that report was written, and furnished to me by the City of Phoenix Environmental Services, I say to you all, shame on you all. To allow the quality air permit and the guidelines of EPA to be upheld, and then you all breach that trust. That is a blatant violation of the Civil Rights Act. That is a blatant violation of the compliance law.*

**Response 12j:** The references to IWU in this comment are not related to this permit. The other questions and issues raised in this comment are unclear. Consequently, MCAQD is unable to provide a response.

**Comment 12k:** *You're not affording this community due process. You're going to give them one night of a hearing, at a comment period, where they should be afforded the 45 to 90 days permitted by law. So I say to you all, as if Al Brown was sitting here, grant this community the time that the need to disseminate this information, to digest this information, to get a clear cut understanding of the endangerment that you all are doing.*

**Response 12k:** Pursuant to the Clean Air Act, the Arizona Revised Statutes (ARS §49-426.D), and Maricopa County Air Pollution Control Regulations (Rule 210 §408) MCAQD is required to provide

notice of a proposed Title V permit once each week for two consecutive weeks in two newspapers of general circulation in the county in which the source is or will be located. In addition, Rule 210 §408 requires MCAQD to provide at least 30 days for public comment, beginning from the date of the first notice of the proposed permit. MCAQD provided the public with proper notice of the proposed permit for Phoenix Brick Yard in accordance with all legal requirements. The date of the first notice of public comment for the proposed Title V permit for Phoenix Brick Yard was on November 27, 2002. A public hearing was held on March 11, 2003, with the public comment period ending on March 12, 2003. The total public comment period lasted 106 days, exceeding the required 30 days. In addition, a charrette was conducted after the public hearing to bring together representatives of the company, a number of local governmental groups, the USEPA and the community. Several actual meetings were conducted to allow all parties to have an open dialogue on the facility.

**Comment 12i:** *I want to know who the contact person would be for the soil and air in this area, what is being done, and contact person we would like to know to come and speak with us, okay?*

**Response 12i:** The Maricopa County Air Quality Department regulates the emissions of air pollutants from facilities located in the area of Phoenix Brick Yard. Mr. Rich Polito is the Acting Department Manager. To contact Mr. Polito, please call (602) 506-6701. To request a speaker at a neighborhood meeting, please contact Johnny Dilone at (602) 506-6611.

The Waste Programs Division of the Arizona Department of Environmental Quality (ADEQ) deals with environmental issues related to soil in the area of Phoenix Brick Yard. The director of the Waste Programs Division is Ms. Shannon Davis. To contact Ms. Davis, please call (602) 771-4208.

# **ATTACHMENT 3**

## **Technical Support Document**

### **Title V Permit for Phoenix Brick Yard**



**Technical Support Document (TSD)**  
**Phoenix Brick Yard**  
**Permit Number: V97-021**  
**December 15, 2004**

I.	COMPANY DESCRIPTION .....	2
II.	PROCESS DESCRIPTION -----	
	2	
III.	EMISSIONS .....	3
IV.	COMPLIANCE HISTORY.....	6
V.	APPLICABLE REQUIREMENTS .....	7
VI.	TESTING REQUIREMENTS.....	11
VII.	PREVIOUS PERMITS & PERMIT CONDITIONS.....	13
VIII.	NON-APPLICABLE REGULATIONS.....	
	13	
IX.	FUTURE APPLICABLE REQUIREMENTS.....	
	14	
X.	MODELING.....	14

## **I. INTRODUCTION COMPANY DESCRIPTION**

This permit is a Title V permit for Phoenix Brick, located in Phoenix, Arizona. Phoenix Brick is currently permitted under the permit number of 8602395. Due to the amendments of 1990 to the Clean Air Act, Phoenix Brick was designated a major source for Hazardous Air Pollutants (HAPs) and therefore subject to the Title V permitting procedures of the Clean Air Act. The Phoenix Brick facility produces a structural clay product (brick).

### **A. Company Information:**

Facility Name: Phoenix Brick

Mailing Address: 1814 S. 7<sup>th</sup> Ave

Phoenix, AZ 85007

Facility Address: 1814 S. 7<sup>th</sup> Ave

Phoenix, AZ 85007

### **B. Attainment Classification:**

The Phoenix Brick facility is located in southern Phoenix, Arizona, which is currently designated non-attainment for ozone, carbon monoxide and PM<sub>10</sub>.

## **II. PROCESS DESCRIPTION**

The Phoenix Brick facility manufactures structural clay products and falls under the source industrial classification code (SIC) numbers 3251 and 3271.

The brick production process begins by trucking, to the facility, the clay raw material (various types of common clay). The clay raw material contains fluorides, chlorides and hazardous metals that are released during the processing of the material into bricks. The clay material is stored into different storage piles located in an open lot on the westward portion of the facility. A water sprinkler system and a water truck are utilized to control emissions from these piles. About 99% of the clay raw material will be processed through the Tunnel Kiln process line and 1% through the Roller Kiln process line. Occasionally before the material is processed, small amounts of manganese dioxide, barium carbonate and iron oxide are mixed with the clay to produce colors. These additives are stored in bags and used as needed.

A front-end loader transfers the clay raw material onto a conveyor leading to the enclosed grinders (hammermills), where the material is pulverized. The pulverized material will then go through a screening process where the oversize is recycled back into the same grinder. Each grinder-screen pair is vented to a dust collector (baghouse). The screened material is then held in storage bins. The material is transferred from the storage bins to the brick machines (pugmills). At the brick machines the material is mixed with both Additive-A (calcium lignosulfate polymer) and water during the brick extrusion process. Collection vents are located above the conveyor drop points at the brick machines, which are vented to a dust collector. The brick machines produce a moist mixture of materials, usually over 20% moisture, and form brick columns. The brick columns are transferred to the brick cutter, where it is cut into appropriate sized bricks. Lubricating oil is applied to the outside of the bricks to reduce friction during extrusion.

The formed bricks are loaded onto kiln cars (Tunnel Kiln) or dryer cars (Roller Kiln) and moved into a holding room and then they are gradually moved into the natural gas dryer. The temperature of the dryer is kept at a constant 300 °F. The dryer is heated through waste heat from the kiln, ambient outside temperature and natural gas (usually only necessary in the winter). Once the bricks are dried, they are gradually moved into the kilns, where most of the natural gas is burned. The

firing temperature in the tunnel kiln is approximately 1,930 °F. Each kiln car spends at least 33 hours in the Tunnel Kiln.

After the bricks are removed from the kiln they are packaged and stored for shipment. Haul trucks deliver the packaged bricks to the customer.

In addition, an ancillary process at the facility is using a natural gas round kiln to heat-treat steel. This process is only used as required.

### III. EMISSIONS

Emissions were calculated through a variety of resources and methods such as test data, the Environmental Protection Agency volume on emissions factors (Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: *Stationary Point and Area Sources*), mass balances, and emissions factors established by Maricopa County Emissions Inventory Unit. Table 1, illustrates the sections from AP-42 utilized to determine emissions factors for PM<sub>10</sub>, CO, NO<sub>x</sub>, HCl and additional hazardous air pollutants (HAP) related to Phoenix Brick's operations. However, emissions of HF were calculated using a mass balance approach and source testing conducted on the raw material used by Phoenix Brick. Emissions of SO<sub>x</sub> were calculated from an emission factor from AP-42 plus an emission factor produced by lab testing supplied by the vendor of Additive A. The Additive A binding material produces SO<sub>2</sub> during the high temperature processing through the kiln. Emissions of volatile organic compounds (VOC) from gasoline storage tank filling were determined using emissions factors obtained from Maricopa County Emissions Inventory Help Sheet for Fuel Storage and Handling. Emissions of other VOC were calculated using a mass balance approach and assuming all of the material used is emitted as a VOC. Table 2 shows the emissions factors associated to each process or equipment.

**Table 1: AP-42 sections used to determine emissions factors.**

Section	Title
1.4	Natural Gas Combustion
11.3	Bricks and Related Clay Products
13.2.1	Paved Roads
13.2.2	Unpaved Roads
13.2.4	Aggregate Handling and Storage Piles

**Table 2: Emissions Factors for Phoenix Brick Production**

Process or equipment	Units	CO	NOx	SOx	PM10	VOC	NPOC	HF	HCl
Solid raw material storage	lb/ton processed				0.0278				
Front-end loader unloading	lb/ton processed				0.0024				
Raw material grinding and screening	lb/ton fired brick				0.0023				
Brick extrusion	lb/ton fired brick				0.0036				
Lube oil in dryer (diesel) – material to be replaced	lb/gal					7.51			
Lube oil in dryer (diesel) – material to be replaced	lb/gal					7.08			
Dryers	lb/ton fired brick	0.31	0.098	0.24	0.187	0.03	0.11		
Kilns	lb/ton fired brick	1.2	0.35	0.904	0.87	0.024	0.038	1.602(max.) 1.438(avg.)	0.17
Heat treat steel	lb/MM ft <sup>3</sup>	84	100	0.6	7.6	5.5			
Fugitive dust due to vehicles (paved roads)	lb/VMT				1.74				
Fugitive dust due to vehicles (unpaved roads)	lb/VMT				1.89				
Solvent tank	lb/gal					6.42			
Gasoline storage	lb/yr					265.4			
Vehicle refueling: displacement losses	lb/1000 gal					11			
Vehicle refueling: spillage	lb/1000 gal					0.7			

Table 3, shows the potential to emit, the potential to emit after a voluntary accepted permit condition limiting production, and actual emissions for the year 2001 for the criteria pollutants (CO, NOx, SOx, VOC, PM<sub>10</sub>) total HAPs and single HAP of significant amounts (i.e., HF and HCl).

**Table 3: Pollutant emissions from Phoenix Brick**

Criteria Pollutants	Potential (ton/yr)	Potential After Production Limit <sup>5</sup> (ton/yr)	Actual 2001 <sup>6</sup> (ton/yr)
Carbon Monoxide (CO)	69	66	36.7
Nitrogen Oxides (NOx)	21	20	11.5
Sulfur Dioxide (SOx) <sup>1</sup>	52	50	29.3
Volatile Organic Compounds (VOCs) <sup>2</sup>	15 (8)	3	13.3
PM10	56	54	27.8
TSP	90	84	---
HAPS <sup>3</sup>	74	70 (60)	41.2
- Hydrogen Fluoride <sup>4</sup>	65	62 (52)	36.8
- Hydrogen Chloride	7.7	7.4	4.4

**Notes:**

- <sup>1</sup> Sulfur Dioxide is produced due to the addition of a binding material called Additive A, which is Calcium Lignosulfate. The sulfate is converted to SOx during the heat treatment of the bricks.
- <sup>2</sup> See discussion below on VOC emissions from the volatilization of lube oil in the dryer.
- <sup>3</sup> HAPS include HF, HCl, and less than 1 ton of other HAPs associated with brick manufacturing.
- <sup>4</sup> The number indicated in parentheses is based on a voluntarily accepted daily average HF limit of 287 lbs/day. Refer to the discussion below on HF emissions. The potential HF emission of 62 tons per year is based on the production limit discussed in note 5 and an average HF emission factor of 1.438 lb HF / ton of brick processed.
- <sup>5</sup> The maximum voluntarily accepted production limit is 9.9 tons/hr, which is based on the MACT control applicability threshold of 10 tons/hr. However, Phoenix Brick has also voluntarily agreed to limit production such that HF emissions do not exceed a daily average of 287 pounds over a one-month period. The HF emission rate that is to be calculated is based on data from a series of source test results. Therefore, the production limit necessary to comply with the average HF emission rate limit of 287 lbs/day will vary depending on the emission factor. However, the maximum production limit is not to exceed 9.9 tons/hr.
- <sup>6</sup> Actual 2001 HAPS are not reported on Annual Emissions Inventory Reports submitted to MCESD. Therefore, HAP emissions were estimated using a the reported production level and an HF emission factor of 1.438 lbs. HF/ton brick, and an HCl emission factor of 0.17 lb HCl/ton brick.

**VOC Emissions from the Volatilization of Lube Oil in the Dryer**

Lube oil is used to allow the bricks to be released from their molds easily. Phoenix Brick uses no. 2 diesel fuel and Darval 150 as lube oils. Estimates of potential VOC emissions indicated in the permit application included VOCs from the volatilization of lube oil in the dryer. In the application it was assumed that the lube oils consisted of 100% VOC and that all of the lube oil used was emitted as VOC in the dryer. To maintain VOC emissions less than 15 pounds per day (while subject to temperatures in excess of 200°F) pursuant to Rule 330, Phoenix Brick will substitute the diesel fuel and Darval 150 with 76 Unax AW 32. According to a letter from Phoenix Brick's consultant (SECOR International, Inc.), dated November 21, 2002, the substitution is to take effect by the end of November 2002. Also according to this letter, Unax AW 32 has a negligible volatility and a flash point in excess of 374°F, and therefore would not be released at the temperature in the dryer. Any material released in the kiln would be thermally oxidized.

#### Hydrogen Fluoride Emissions

Phoenix Brick voluntarily accepted a production limit of 9.9 tons per hour in order to minimize the possibility of being subject to the control requirements of the proposed MACT standards (40 CFR Part 63, Subpart JJJJ – National Emission Standards for Hazardous Air pollutants for Brick and Structural Clay Products Manufacturing). Under the now final MACT, an existing tunnel kiln with a federally enforceable permit condition that restricts kiln operation to less than 10 tons per hours on a 30-day rolling average basis is not subject to the add on control requirements of the rule.

In Table 3, potential HF emissions were based on a maximum production capacity of 10.37 tons per hour (for potential emissions), or a voluntarily accepted production limit of 9.9 tons per hour (for potential emissions after production limit), along with an average HF emission factor of 1.438 lb HF / ton of brick processed. This emission factor was determined by the mass balance results of fluorine sampling of raw material, along with the assumption that 100% of the fluorine lost is converted to HF. The resulting potential HF emissions, with and without the production limit, are 62 tons per year and 65 tons per year, respectively. However, using the maximum HF emission factor of 1.602 lb HF / ton of brick processed, the potential HF emissions with and without the production limit are 70 tons/yr and 73 tons/yr, respectively.

In addition to the federally enforceable limit of 9.9 tons per hour, Phoenix Brick has also voluntarily agreed to limit production such that HF emissions do not exceed a daily average of 287 pounds per day over a one-month period. This daily average limit was based on dispersion modeling results submitted with the permit application. According to the modeling results, the HF emission rate input into the model necessary to limit the maximum 1-hr HF concentration to a level that does not exceed the 1-hr Arizona Ambient Air Quality Guideline (AAAQG) for HF is 1.5079 grams per second. Assuming the kilns operate 24 hours per day, the HF emission rate corresponds to 287 pounds per day. In order to be more certain that the 1-hr AAAQG for HF will not be exceeded during any one-hour period, a more ideal HF emission limit would be based on an hourly timeframe such as 12 pounds per hour. This would require hourly record keeping, which can be burdensome to facilities like Phoenix Brick. The HF emission rate voluntarily accepted by Phoenix Brick is a daily average over a one-month period. Therefore, it is possible that Phoenix Brick could comply with the average HF emission limit of 287 pounds per day and still exceed the 1-hr AAAQG for HF. In addition, if the kilns are not operated 24 hours per day, or the majority of throughput into the kilns occurs over a period of time less than one day, it is possible that Phoenix Brick could comply with the average HF emission rate of 287 pounds per day, while exceeding the 1-hr AAAQG for HF.

#### **IV. COMPLIANCE HISTORY**

Table 4 shows all the Compliance Status Notifications (CSN) issued to Phoenix Brick. The CSN's were issued during a level 2 source inspection. The source took appropriate action to resolve the issues and ensure compliance.

**Table 4: Compliance Status Notifications**

<b>ID # (if applicable)</b>	<b>Date issued</b>	<b>Rule</b>	<b>Description</b>
12-14-00-01	12/7/00	316 §305.1.b.	Failure to submit an Operation and Maintenance Plan to the Control Officer for approval of each emissions control system and monitoring devices (four Baghouses)

12-14-00-02	12/7/00	353 §502.2	Failure to maintain records of weekly fill tube, vapor valve and spill containment inspections.
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Nine citizen complaints have been documented since the permitting of Phoenix Brick in 1986. The complaints were generally in regard to odor and dust concerns from the facility. All complaints were investigated and the appropriate action or determination was conducted.

## V. APPLICABLE REQUIREMENTS

### A. Voluntary Accepted Permit Conditions (Permit Conditions 18.E and 19.F)

#### 1. Discussion:

Phoenix Brick voluntary accepted permit conditions limiting HF emissions to 287 pounds per day, averaged over a one-month period. The limit was accepted to minimize the possibility that the maximum HF emissions would exceed the Arizona Ambient Air Quality Guidelines (AAAQGs) for HF. The limit was obtained from the HF emission rate used during the ISC3 modeling. Phoenix Brick also voluntarily accepted a maximum production limit of 9.9 tons per hours, averaged over a 30-day rolling period. This limit was accepted in order to minimize the possibility of becoming subject to the (at the time) proposed MACT (Subpart JJJJ) with its control requirement threshold of 10 tons per hour.

#### 2. Monitoring for Compliance (Permit Condition 20.F.1):

The Permittee must maintain a daily and 30-day rolling total throughput record for the kilns and a daily and 30-day rolling total operating time record for the kilns. To monitor for compliance with the federally enforceable production limit of 9.9 tons per hour, the average throughput into the kilns is to be calculated over a 30-day rolling period. Results of this calculation are to be recorded daily. Also, to monitor for compliance with the voluntarily accepted HF emission rate of 287 pounds per day, HF emissions are to be calculated and recorded once per month, and the production limit is to be calculated each time the HF emission factor is updated pursuant to testing (Permit Condition 19.F.1).

#### 3. Reporting requirements (Permit Condition 21.A.):

To ensure compliance, the Permittee must submit with their semi-annual report, the throughput records and calculations required in Permit Condition 20.F.

### B. County Rule 300 - Opacity Limits (Permit Condition 18.A)

#### 1. Discussion:

County Rule 300 restricts visible emissions from any source to 20% opacity, other than emissions of uncombined water. County Rule 300 and the 20% opacity limitation of these permit conditions are locally enforceable only. SIP Rule 30 and the 40% opacity limitation of these permit conditions are federally enforceable.

#### 2. Monitoring for Compliance with Opacity Limits:

Since Phoenix Brick produces a structural clay product (brick) from a clay raw material, numerous opportunities for dust emissions in exceedance of 20% opacity are available. Therefore, Phoenix Brick has installed and utilized baghouses, water trucks and water sprinklers to reduce opacity emissions to comply with these regulations.

However since the chance of visible emissions are available each day, The Permittee will monitor for compliance with the opacity requirements of this permit by conducting a daily walk around the facility, looking for visible emissions from any source capable of visible emissions other than uncombined water (**Permit Condition 20.A.1.a**). An important part of this inspection should be the baghouses, conveyors and storage piles. This requirement is intended to regulate the opacity from all dust generating sources and kiln stacks.

If emissions are observed, the Permittee is required to obtain an EPA Method 9 reading by a certified reader immediately after the observation. In addition the reading must be taken daily thereafter during each day that the unit is in operation until there are no visible emissions during operation (**Permit Condition 20.A.1.b**). The Permittee is required to document any corrective action taken to reduce or eliminate emissions.

**C. SIP Rule 32F – Sulfur Oxide Emissions (Permit Condition 18.A)**

**1. Discussion:**

SIP Rule 32F limits sulfur oxide emissions into the ambient air to a level such that the ground level concentration at any place beyond the premises on which the source is located does not exceed the following limit:

Concentration of Sulfur Dioxide	Averaging time
850 $\mu\text{g}/\text{m}^3$	1 hour
250 $\mu\text{g}/\text{m}^3$	24 hours
120 $\mu\text{g}/\text{m}^3$	72 hours

**2. Monitoring for Compliance with Sulfur Oxide Emissions:**

Maricopa County has evaluated dispersion modeling results that were submitted with the permit application and understands that offsite concentrations at the maximum potential to emit from the facility are less than 4% of the applicable standard pursuant to SIP Rule 32F. Therefore, no additional monitoring, reporting or record keeping requirements necessary to assure compliance. Dispersion modeling is discussed in Section X.

**D. County Rule 310 – Fugitive Dust Sources (Permit Condition 18.B)**

**1. Discussion:**

County Rule 310 requires that during dust generating operations, visible fugitive dust emissions do not exceed 20% opacity. It also requires a company to submit and follow a "dust control plan" (**Permit Condition 23.B**) before beginning any dust generating operations. The Permittee has submitted a dust control plan and has been approved by the Department.



2. Monitoring for Compliance with Particulate Matter Requirements

To monitor for compliance with these requirements, the Permittee shall keep a daily written log recording the actual application of implementation of the control measures delineated in the approved Dust Control Plan. **(Permit Condition 20.B.1)**

E. County Rule 316 - Particulate Matter from Clay Raw Material Handling (Permit Condition 18.C)

1. Discussion

County Rule 316 restricts stack emissions from exceeding 7% opacity and containing more than 0.02 gr/dscf (50 mg/dscm) of particulate matter. Also fugitive dust emissions from any transfer point on a conveying system are restricted to no exceeding 7% opacity. Fugitive dust emissions from any crusher are restricted to 15% opacity. Also any affected operation or process source is restricted to fugitive dust emissions exceeding 10% opacity. Lastly, fugitive dust emissions from truck dumping directly into any screening operation feed hopper or crusher are limited to 20% opacity.

2. Monitoring for Compliance with Particulate Matter Requirements

- a. To monitor for compliance with these requirements, the Permittee is required to keep Daily records for all days that a plant is actively operating. The records shall include hours of operation, throughput per day of raw materials and the amount of each raw material delivered per day. **(Permit Condition 20.C.1.b)**
- b. In addition, Records of baghouses shall be kept and shall include dates of inspection, dates and designation of bag replacement, dates of service or maintenance, related activities, static pressure readings. Records of time, date and cause of all control device failure and down time shall also be maintained. **(Permit Condition 20.C.1.c).**
- c. Also, the Permittee shall record periods of time that an approved emissions control system (ECS) is used to comply with these permit conditions. The following system parameters shall be recorded in accordance with the O&M plan, pressure drop, compressed cleaning air pressure and visible emissions. The records shall account for any periods when the control system was not operating. The Permittee shall also maintain results of the visual inspection and shall record any corrective action taken. **(Permit Condition 20.C.1.d)**

F. County Rule 320 - Odors and Gaseous Air Contaminants (Permit Conditions 19.A)

1. Discussion:

County Rule 320 §§300, 302 and 303, entitled "Gaseous and Odorous Emissions," "Material Containment Required" and "Reasonable Stack Height Required," respectively, apply to this facility and have been incorporated into the permit conditions. Permit conditions based on County Rule 320 are locally enforceable only and permit conditions based on SIP Rule 32 are federally enforceable.

2. Monitoring for Compliance with Rule 320 Limitations:

- a. To monitor for compliance with these requirements, the Permittee is required **(Permit Condition 20.A.2)** to maintain an odor complaint log containing a description of the complaint, date, time and other information and submit a copy of this log with the semi-annual monitoring report.
- b. Also, as part of a weekly facility walkaround, the Permittee is required **(Permit Condition 20.D.2)** to make sure reasonable measures are being taken to prevent

the evaporation of VOCs into the air, including making sure containers are properly covered when not used.

G. County Rule 330 – Operational Requirements for Volatile Organic Compounds (Permit Conditions 18.D and 19.D)

1. Discussion:
  - a. When evaporating a VOC at temperatures exceeding 200 °F (93.3 °C) in the presence of oxygen, the Permittee is limited to discharging no more than 15 pounds (6.8 kg) (**Permit Condition 18.D**) of VOC into the atmosphere in any one day from any machine, equipment, device or other article.
  - b. When using any cleaning liquids with more than 10% VOC content, the Permittee is required (**Permit Condition 19.D.1**) to collect used liquids in a closed container, dispose of them in a manner such that no VOCs will be emitted to the atmosphere, and clean equipment in a vat which will remain closed when not in use.
  - c. The Permittee is also required (**Permit Condition 19.D.2**) to take the measures to minimize VOC emissions when storing, discarding or disposing of VOC-containing materials. For the purposes of minimizing VOC emissions the marble casting machines will have all openings closed whenever possible. Fresh and waste solvent, and solvent-soaked rags and residues shall be stored in labeled (if 1 gallon or larger) containers when not in used and records of all disposal or recovery must be kept. If any solvent escapes from a container, it must be wiped or removed immediately.

2. Monitoring for Compliance

- a. Lube oil is used to allow the bricks to be released from their molds easily. Phoenix Brick used no. 2 diesel fuel and Darval 150 as lube oils. Estimates of potential VOC emissions indicated in the permit application included VOCs from the volatilization of lube oil in the dryer. In the application it was assumed that the lube oils consisted of 100% VOC and that all of the lube oil used was emitted as VOC in the dryer. To maintain VOC emissions less than 15 pounds per day (while subject to temperatures in excess of 200°F) pursuant to Rule 330, Phoenix Brick will substitute the diesel fuel and Darval 150 with 76 Unax AW 32. According to a letter from Phoenix Brick's consultant (SECOR International, Inc.), dated November 21, 2002, the substitution is to take effect by the end of November 2002. Also according to this letter, Unax AW 32 has a negligible volatility and a flash point in excess of 374°F, and therefore would not be released at the temperature in the dryer. Any material released in the kiln would be thermally oxidized. Therefore, in order to comply with the 15 pounds VOC per day limit, Phoenix Brick is required to use a lube oil with a vapor pressure of less than 1 mm Hg at 20 °C.
- b. A list of all the VOC containing materials used at the facility will be kept stating the VOC content and monthly records of usage and disposal shall be kept. (**Permit Condition 20.D.1**)
- c. To monitor for compliance with these requirements, the Permittee will conduct a weekly walk-through the facility and observe that reasonable measures are being taken to prevent VOC evaporation. (**Permit Condition 20.D.2**) Observations will be logged and included in the semiannual report.

H. County Rule 353 – Gasoline in Stationary Dispensing Tanks (Permit Condition 19.E)

1. Discussion:

County Rule 353 §§301, 302 and 305.2, entitled "Basic Tank Integrity," "Fill Pipe Requirements" and "Exemptions," respectively, apply to this facility and have been

incorporated into the permit conditions. Phoenix Brick is exempt from the vapor recovery requirements of Rule 353 §303 since the gasoline storage tank is limited to 120,000 gallons of gasoline in any 12 consecutive calendar months.

2. **Monitoring for Compliance**

- a. To monitor for compliance with these requirements, the Permittee is required to maintain accurate records showing the quantity of all gasoline delivered to the facility. The records will include total gasoline received each month and the 12-month rolling total. **(Permit Condition 20.E.1)**
- b. Also, the Permittee is required to conduct and record results of weekly inspections and each time the submerged fill pipe is reinstalled. The records shall indicate each fill pipe removal date of replacement and the date and results of the follow up inspection. However, the Department's Technical Guidance Memo TG00-002 allows inspections and recordkeeping to be conducted less frequently if delivery of gasoline occurs less than weekly. **(Permit Condition 20.E.2)**

I. **Reporting Requirements (Permit Condition 21)**

Reporting requirements for Phoenix Brick are found in the General Conditions of the permit (Sections 1-17) and Section 21 of the permit.

Section 21 requires the submission of a semi-annual monitoring report, including deviation reporting. The report should be very detailed and should include information such as any day, week or month that any monitoring was required but not performed, the reason for those deviations, and any action taken to ensure that the monitoring will be performed in the future. Additionally, deviations from specified operating ranges or emission limitations or standards should be included, with any additional information.

To allow the Permittee flexibility in coordinating the filing of the semiannual monitoring reports with other data gathering and reporting activities at the facility, the Permittee may select the initial reporting period to be less than 6 months. However, follow-up reporting periods must be in 6-month intervals starting from the end of the initial reporting period.

**VI. TESTING REQUIREMENTS**

1. **Baghouses (Permit Condition 22.A)**

Permit Condition 18.C limits the Permittee's baghouse stack emissions to containing no more than 0.02 gr/dscf (50mg/dscm) of particulate matter. The baghouses at Phoenix Brick have never been tested to verify compliance with this standard. Therefore, the baghouses associated with the Tunnel Kiln process line, labeled in the equipment list as DC-001, DC-002 and DC-004, are required to be tested to show stack emissions contain no more than 0.02 gr/dscf (50mg/dscm) of particulate matter. Since DC-004 and DC-002 are similar baghouses, only one of these two is required to be tested. The baghouse to be tested will be determined by the Department.

The following discussion provides justification for testing in accordance with Rule 200 § 309.2.

- a. The U.S. EPA has particulate matter with a diameter less than 10 µm (PM-10) as a criteria pollutant, which adversely affects human health when airborne. Since the baghouses associated with the kilns have not been tested to verify compliance with the particulate matter emission standard of 0.02 grains/dscf from the exhaust stack of the kilns, the Department has determined it necessary to conduct source testing on the baghouses associated with the kilns.
- b. The test method to be used is EPA Method 5, an approved EPA test method that has shown to produce scientifically acceptable results.
- c. EPA Test Method 5 has been determined to be technically feasible.

- d. EPA Test Method 5 has been shown to demonstrate reasonably accurate results.
- e. After examining the estimated cost of the test, the Department believes that the cost of a stack-sampling test of the control devices is reasonable to determine the effectiveness of the control device, to establish a base line of emissions, to avoid potential fines, to establish parametric monitoring, to demonstrate adequacy of a maintenance program on equipment or controls, to provide emissions rate information for possible future PSD/NSR modeling requirements, and to establish emissions rate information for environmental justices purposes.

2. **Kiln Stack Testing and Testing of Fluorine Content of Brick (Permit Condition 22.B)**

Permit Condition 18.E was voluntarily accepted in order to minimize the potential for HF emissions to exceed the AAAQGs for HF. The HF emission rate was determined based on ISC3 modeling results. The HF emission rate used in the model was 1.5079 grams per second, which corresponds to 287 pounds per day. To verify the HF emission rate, Phoenix Brick is required to perform testing on the Tunnel Kiln stacks and on the fluorine content of the bricks prior to and after firing in the kiln. The test method proposed by Phoenix Brick for the mass balance testing of fluorine has been reviewed and approved by the Department. The test method can be found in the report titled An Engineering Based Study to Minimize the Impact of Requirements of the Clean Air Act in Brick Manufacturing, which is attached to this Technical Support Document. However, to determine the correlation between HF emissions and fluorine content of the raw material, Phoenix Brick will be required to conduct an initial stack test of the Tunnel Kiln stacks. Another purpose of conducting an initial stack test is to determine if an appropriate emission rate was used in ISC3 modeling.

The mass balance testing of fluorine within the brick will involve measuring the fluorine content in a brick before and after being exposed to a temperature of 1,930 °F in the Kiln. Since all the fluorine that is lost is assumed to be emitted as HF, this method is conservative for estimating HF emissions. The mass balance testing will be conducted three times per year. The purpose of subsequent mass balance testing is to obtain a sufficient amount of data to determine an HF emission factor [lbs HF / ton of brick fired] and to account for any potential variability in fluorine content within the raw material.

The following discussion provides justification for testing in accordance with Rule 200 §309.2.

- a. The U.S. EPA has identified hydrogen fluoride (HF) as a hazardous air pollutant (HAP). The Arizona Department of Health Services (ADHS) has developed health-based guidelines for certain air contaminants. These guidelines are referred to as Arizona Ambient Air Quality Guidelines (AAAQGs). The AAAQGs are residential screening values that are protective of human health, including children. According to ADHS, chemical concentrations that exceed AAAQGs may represent a health risk. Phoenix Brick has voluntarily accepted a production limit that, based on ISC3 modeling, will minimize the potential for HF emissions to exceed the AAAQGs for HF. Testing is necessary to verify that predicted HF emissions will not exceed the health-based guideline.
- b. The test method to be used for measuring the HF emission rate from the kiln stacks is EPA Method 26A. This method has been shown to produce scientifically acceptable results. The test method to be used for conducting a mass balance on the fluorine content of the brick to estimate HF emissions is not an EPA approved test method, however, the proposed method has been reviewed by the Department and has shown to produce scientifically acceptable results. This test method is a mass balance determination of fluorine within the brick. It is assumed that 100% of fluorine lost is converted to HF and is emitted into the atmosphere. The test method was obtained from a technical report titled, An Engineering Based Study to Minimize the Impact of Requirements of the Clean Air Act in Brick Manufacturing.

- c. Based on the review of the test methods and the operations conducted at Phoenix Brick, the Department has determined that the test methods are technically feasible.
- d. Since the fluorine content sampling test method is based on a simple material balance and the assumption that 100% of the fluorine lost is converted to HF and is emitted into the atmosphere, the Department has determined that this method is conservative for determining HF emissions. In addition, both test methods have shown to produce reasonably accurate results.
- e. After examining the estimated cost of testing, the Department believes that the cost is reasonable to determine emissions of HF and to provide emissions rate information for possible future MACT applicability requirements and PSD/NSR modeling requirements, and to establish emissions rate information for environmental justices purposes.

## **VII. PREVIOUS PERMITS & PERMIT CONDITIONS**

Phoenix Brick was first permitted as a stationary pollutant source prior to 1986. During 1986 Maricopa County switched to computer generated permitting numbers and therefore, Phoenix Brick was then permitted under the permit number 8602395. Due to the amendments of 1990 to the Clean Air Act, Phoenix Brick was designated a major source for Hazardous Air Pollutants (HAPs) and therefore subject to the Title V permitting procedures of the Clean Air Act.

No modifications subject to permitting procedures have been performed at Phoenix Brick since the issuing of permit number 8602395.

## **VIII. NON APPLICABLE REGULATIONS**

- 1) County Rule 310.01: Fugitive Dust from Open Areas, Vacant Lots, Unpaved Parking Lots and Unpaved Roadways:

County Rule 310.01, entitled "Fugitive Dust from Open Areas, Vacant Lots, Unpaved Parking Lots and Unpaved Roadways," is applicable to open areas, vacant lots, unpaved parking lots and unpaved roadways, which are not regulated by County Rule 310 of these rules and do not require a permit or a dust control plan. Since Phoenix Brick is required to have both a Title V permit and an approved dust control plan County Rule 310.01 is not applicable.

- 2) County Rule 311: Particulate Matter from Process Industries:

County Rule 311, entitled "Particulate Matter from Process Industries," is applicable to any affected operation, which is not subject to the provisions of County Rule 316, entitled "Nonmetallic Mineral Mining and Processing." Therefore, since County Rule 316 is applicable to Phoenix Brick, County Rule 311 is not applicable.

- 3) 40 CFR 60 Subpart NSPS OOO "Nonmetallic Mineral Processing Plants"

The NSPS standard subpart OOO applies to any nonmetallic mineral processing plants constructed after August 31, 1983 and has a capacity greater than 10 tons/hr. The only piece of equipment constructed at Phoenix Brick after August 31, 1983 is the Roller Kiln processing line. However, Phoenix Brick took a voluntary accepted permit conditions limiting their production to 9.9 tons/hr of combined throughput through their Tunnel and Roller Kiln. Also, based on a letter (October 17, 1997) from Phoenix Brick's consultant (SECOR International Inc.) to the U.S. EPA, the maximum production rate achieved in Roller Kiln processing line was 6.4 tons per hour, while operating at 100% capacity. Therefore, 40 CFR 60 Subpart NSPS OOO "Nonmetallic Mineral Processing Plants," is not applicable.

- 4) Compliance Assurance Monitoring (CAM) (40 CFR 64):

The application shows that Phoenix Brick Yard uses baghouses to meet the standards for emissions outlined in County Rule 316 entitled "Nonmetallic Mineral Mining and Processing." The unit is

classified as a small unit, which by definition means a unit that has post control potential to emit less than major source thresholds. Since the unit is considered a small unit, CAM does not need to be addressed until the renewal of this permit. Therefore, CAM is not applicable at this facility at this time.

## IX. FUTURE APPLICABLE REQUIREMENTS

When the permit entered the public notice process, 40 CFR 63 Subpart JJJJJ, National Emission Standards for Hazardous Air Pollutants for Brick and Structural Clay Products Manufacturing was a proposed standard. Since Phoenix Brick is classified as a major source for Hazardous Air Pollutants, they will be subject to the standard. The facility will have to comply with the requirement of the permit to submit an application to demonstrate how they will comply with this standard in the future.

## X. MODELING

ISC3 modeling was conducted for Hydrofluoric acid (HF), Hydrochloric acid (HCl) and Sulfur Dioxide (SO<sub>2</sub>) according to MCESD "Air Toxics/Hazardous Air Pollutant Permitting Procedure" (2/29/00 Draft). Only these chemicals were modeled due to the significant level of emissions. The model was conducted using the emission rate of HF (i.e., 1,5079 g/s). A ratio was applied to determine the concentration levels for HCl and SO<sub>2</sub>. An HF emission limit was voluntarily accepted to minimize the potential of exceeding the AAAQGs for HF.

The HF emissions are released through the kiln stacks. Two stacks (north and south stacks) are present on the kiln where the HAPs are emitted. The kiln is operated 24 hours per day, 7 days per week for a total of 8,760 hours per year. The bricks are passed through the kiln at a constant rate and therefore, assuming a constant fluorine content of the brick mix, the HF emissions are emitted at a constant hourly rate. Thus, based on the HF emission rate used in the model, the annual HF emissions are 52.4 tons per year.

The following parameters were used for modeling:

HF Emission Rate:	11.97 lb/hr (52.4 ton/yr)
HCl Emission Rate:	1.25 lb/hr (5.5 ton/yr)
SO <sub>2</sub> Emission Rate:	8.48 lb/hr (37 ton/yr)
Building Dimensions:	243' L X 72' W X 26' H

**Table 5: Kiln stacks parameters**

Stack	North	South
Height (ft)	31.5	31.5
Diameter (ft)	3.9	3.9
Exit Gas Velocity (ft/s)	34.3	52.3
Exit Gas Temperature (°F)	379	593

**Table 6: ISC3 Model results compared to ambient air concentration guidelines**

	HF		HCl		SO <sub>2</sub>	
(µg/m <sup>3</sup> )	Predicted	AAAQG	Predicted	AAAQG	Predicted	SIP Rule 32F
Max. 1-hr	41	42	4.3	210	29.1	850
Max. 24-hr	5.8	20	0.6	56	4.1	250

The results in Table 6 demonstrate that both the AAAQGs for HF and HCl and SIP Rule 32F ambient concentration limit for SO<sub>2</sub> were not exceeded based on modeling input parameters.

In a letter from the Department, dated September 19, 2002, Phoenix Brick was notified that the air quality dispersion model provided in the Title V application did not account for the presence of the rain caps on the kiln stacks. Phoenix Brick was asked to either resubmit modeling results that are representative of facility operations (i.e., stack configuration) or remove the rain caps to ensure that the facility is operating consistently with the model input parameters. On October 1, 2002, Phoenix Brick removed the rain caps that were located directly above the kiln stacks. This allowed the unhindered vertical rise of the stack plume. The presence of the rain caps redirected the stack emissions horizontally. The removal of the rain caps should reduce fence-line concentration of pollutants and reduce odors.